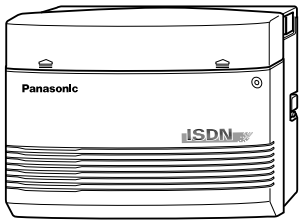
Panasonic



Digital Super Hybrid System

Installation Manual

Model No. KX-TD612E

Thank you for purchasing a Panasonic Digital Super Hybrid System, Model KX-TD612. Please read this manual before connecting the Digital Super Hybrid System and save this manual for future reference.

Version 3

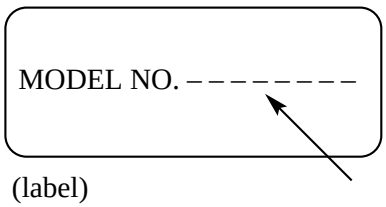
Thank you for purchasing a Panasonic Digital Super Hybrid System, Model KX-TD612.

Note

- This product is designed to interwork with the:
  — pan-European Integrated Services Digital Network (ISDN) using ISDN basic access.
  — Public Switched Telephone Network (PSTN) of U.K..
- We, Kyushu Matsushita Electric Co., Ltd. of Matsushita Electric Industrial Co., Ltd./ Panasonic Testing Centre (Europe) GmbH, declare that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. If you want to get a copy of the original Declaration of Conformity of our products which relates to the R&TTE, please contact to our web address: http://doc.panasonic-tc.de

Notice

- The Digital Proprietary Telephone is abbreviated as "DPT".
- The Single Line Telephone is abbreviated as "SLT".
- "Console" is a generic designation of Digital DSS Console (KX-T7240/KX-T7440) and Digital Attendant Console (KX-T7440).
- This Installation Manual does not show the complete model number that indicates the country where your models should be used. The model number of your unit is found on the label affixed to the unit.



(label)

System Components

System Components Table

	Model No.	Description
Service Unit	KX-TD612	Digital Super Hybrid System
Digital Proprietary Telephone (DPT)	KX-T7230	DPT with SP-PHONE, 2-Line Display (24-CO)
	KX-T7235	DPT with SP-PHONE, 6-Line Display (12-CO)
	KX-T7250	DPT with MONITOR (6-CO)
	KX-T7420	DPT with SP-PHONE (12-CO)
	KX-T7425	DPT with SP-PHONE (24-CO)
	KX-T7431	DPT with SP-PHONE, 1-Line Display (12-CO)
	KX-T7433	DPT with SP-PHONE, 3-Line Display (24-CO)
	KX-T7436	DPT with SP-PHONE, 6-Line Display (24-CO)
Console	KX-T7240	Digital DSS Console
	KX-T7440	Digital DSS Console
	KX-T7441	Digital Attendant Console
Optional Equipment	KX-TD61280	1 BRI Expansion Card
	KX-TD61281	Analogue CO Expansion Card
	KX-TD61291	Voice Message Card
	KX-TD61260	Doorphone/Door Opener Card (for T30865)
	KX-TD61261	Doorphone/Door Opener Card (for German type)
	KX-TD61283	Caller ID Sending Card with 1 CO I/F
	KX-T30865	Doorphone
	KX-A227	Backup Battery Cable

Important Information

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience. A 5 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5 amps and that it is approved by ASTA or BSI to BS1362.

Check for the ASTA mark *or the BSI mark* *on the body of the fuse.*

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced. If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

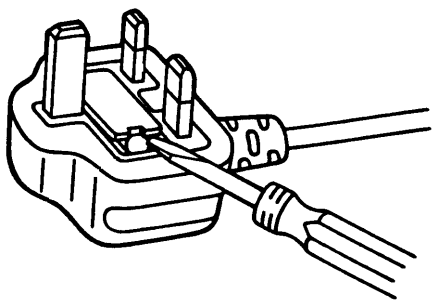
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY. THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

WARNING

THIS APPLIANCE MUST BE EARTHED

***How to replace the fuse** : Open the-fuse compartment with a screwdriver and replace the fuse and fuse cover.*



Satisfactory performance can not be guaranteed for every allowed combination of host and subsidiary apparatus.

999 and 112 can be dialled on the apparatus after accessing the CO line for the purpose of making outgoing calls to the BT emergency (999) and (112) service.

"***Prevention of access by user.*** *This apparatus is intended to be accessible only to authorised personnel. This apparatus must be installed in a locked room or similar environment, such that user access is prevented. Failure to prevent such user access will invalidate any approval given to this apparatus.*"

CAUTION

Do not push the PAUSE button more than twice following the initial access digit (or digits). Failure to comply with requirement may result in unsatisfactory operation.

Notice

This PBX should only be used on B•T lines on which specific BT services or facilities are provided.

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

Attention

- When the unit is working, the noise is less than 70dB(A) according to DIN 45635 Part 19.
- Keep the unit away from heating appliances and electrical noise generating devices such as fluorescent lamps, motors and televisions. These noise sources can interfere with the performance of the Digital Super Hybrid System.
- This unit should be kept free of dust, moisture, high temperature (more than 40 °C) and vibration, and should not be exposed to direct sunlight.
- Never attempt to insert wires, pins, etc. into the vents or other holes of this unit.
- If there is any trouble, disconnect the unit from the telephone line. If you have an ISDN line, plug an ISDN telephone directly into it; if you have an analogue CO line, plug a regular telephone directly into it. If the telephone operates properly, do not reconnect the unit to the line until the trouble has been repaired. If the telephone does not operate properly, chances are that the trouble is in the telephone system, and not in the unit.
- Do not use benzine, thinner, or the like, or any abrasive powder to clean the cabinet. Wipe it with a soft cloth.
- This system is in accordance with the European Telecommunication Standards (ETS) specifications below:

  ETS 300 092 Calling Line Identification Presentation (CLIP) supplementary service.

  ETS 300 093 Calling Line Identification Restriction (CLIR) supplementary service.

  ETS 300 097 Connected Line Identification Presentation (COLP) supplementary service.

  ETS 300 098 Connected Line Identification Restriction (COLR) supplementary service.

  ETS 300 064 Direct Dialling In (DDI) supplementary service.

  ETS 300 052 Multiple Subscriber Number (MSN) supplementary service.

  ETS 300 182 Advice of Charge (AOC) supplementary service.

  ETS 300 196/207 Call Forwarding Unconditional (CFU), Call Forwarding Busy (CFB), Call Forwarding No Reply (CFNR) supplementary services.

  ETS 300 286 User-to-User Signalling (UUS) supplementary service.

  ETS 300 061 Sub-addressing supplementary service.

  ETS 300 359 Completion of Calls to Busy Subscriber (CCBS) supplementary service.

  ETS 300 122 Keypad Protocol (ISDN Service Access) supplementary service.

  ETS 300 141 Hold supplementary service.

  ETS 300 055 Terminal Portability for ISDN Extension supplementary service.

  ETS 300 188 Three Party Conversation supplementary services.

  ETS 300 369 Call Transfer supplementary service.

  ETS 300 185 Add-on Conference supplementary service.

  ETS 300 659 Subscriber line protocol over the local loop for display (and related) services; Part 1: On hook data transmission

WARNING

THIS UNIT MAY ONLY BE INSTALLED AND SERVICED BY QUALIFIED SERVICE PERSONNEL.

WHEN A FAILURE OCCURS WHICH RESULTS IN THE INTERNAL PARTS BECOMING ACCESSIBLE, DISCONNECT THE POWER SUPPLY CORD IMMEDIATELY AND RETURN THIS UNIT TO YOUR DEALER.

DISCONNECT THE TELECOM CONNECTION BEFORE DISCONNECTING THE POWER CONNECTION PRIOR TO RELOCATING THE EQUIPMENT, AND RECONNECT THE POWER FIRST.

THIS UNIT IS EQUIPPED WITH AN EARTHING CONTACT PLUG. FOR SAFETY REASONS THIS PLUG MUST ONLY BE CONNECTED TO AN EARTHING CONTACT SOCKET WHICH HAS BEEN INSTALLED ACCORDING TO REGULATIONS.

THE POWER SUPPLY CORD IS USED AS THE MAIN DISCONNECT DEVICE. ENSURE THAT THE SOCKET-OUTLET IS LOCATED/INSTALLED NEAR THE EQUIPMENT AND IS EASILY ACCESSIBLE.

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

The serial number of this product may be found on the label affixed to the side (the panel with the RS-232C port) of the unit. You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid in identification in the event of theft.

For your future reference

MODEL NO. _____

SERIAL NO. _____

DATE OF PURCHASE _____

NAME OF DEALER _____

DEALER'S ADDRESS _____

_____

_____

_____

DEALER'S TEL. NO. _____

Introduction

This Installation Manual is designed to serve as a technical reference for the Panasonic Digital Super Hybrid System, KX-TD612. It provides instructions for installing the hardware.

Structure of the Manual

This manual contains the following sections:

Section 1, System Outline
Provides general information on the system, including system capacity and connection diagram.

Section 2, Installation
Contains the basic system installation and wiring instructions, as well as how to install the optional cards.

Section 3, Troubleshooting
Provides information for the system and telephone troubleshooting.

Note

The following documents may be used in conjunction with this manual:
Features Guide, Programming Guide, User Manual for KX-TD612 System, Digital Proprietary Telephones, Console and Single Line Telephones.

Description of the Symbols Mainly Used in this manual

Additional information and conditions.

Features Guide or Programming Guide references.

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Section 1

System Outline

This section provides general information on the system, including system capacity and connection diagram.

1.1 System Highlights

1.1.1 System Highlights

System Capacity

	Basic System	Module Expansion	Maximum Capacity
CO line (ISDN (BRI) CO Line)	4(2)	2(1)	6(3)*
(Analogue CO Line)	—	1	1
Extension line	12	—	12

* ISDN (BRI) port 2 and ISDN (BRI) port 3 can be selected to be used for a CO line or ISDN extension line (default: Port 2 — CO line/Port 3 — Extension). The maximum capacity of the system depends on the line selection. See below.

Line Selection	ISDN CO Line	ISDN Extension Line	Extension Line
3 ISDN (BRI) ports are selected for CO line	6	0	12
2 ISDN (BRI) ports are selected for CO line	4	8	12
1 ISDN (BRI) port is selected for CO line	2	16	12

Module Expansion

Expansion modules are used to increase the system capacity. An ISDN (BRI) line module can be added to the basic system to add 2 CO lines or 8 ISDN extension lines (default: Port3 — Extension). Also an analogue CO expansion card can be installed to add 1 analogue CO line.

Intelligent Call Handling — Distribution of Incoming Calls

Directs an incoming outside call to a specific extension/group depending on the DDI/MSN numbers provided by Integrated Services Digital Network (ISDN) or the caller's identification number (CLIP).

Built-in Voice Message

Enables you to store a voice message transferred from internal/external calls, if an optional card KX-TD61291 is installed in the main unit KX-TD612.

Automatic Selection of Calling/Connected Line Identification Presentation (CLIP/COLP)

Automatically selects the pre-assigned CLIP/COLP number on the called party's display.

Remote Maintenance

You can perform the remote maintenance and programming as well as the on-site maintenance by using a personal computer through the Integrated Services Digital Network (ISDN).

EXtra Device Port (XDP)

Extension jacks 1 to 4 in the system support the connection of digital proprietary telephones/ consoles and single line devices. The devices have different extension numbers and are treated as 2 completely different extensions.

Paralleled Telephone Connection

Extension jacks 1 to 4 in the system also supports a parallel connection of a digital proprietary telephone and a single line device. They share the same extension number and are considered by the system to be 1 extension.

Super Hybrid System

This system supports the connection of digital proprietary telephones, consoles and single line devices such as single line telephones, facsimiles.

Programming System

The system can be programmed from a digital proprietary telephone or from a personal computer.

Least Cost Routing (LCR)

Automatically selects the pre-programmed least expensive route for outgoing toll calls.

Trunk (CO Line) Answer From Any Station (TAFAS)

Ringing occurs over the external paging system; call can be answered from any station.

Charge Fee Reference

Allows the user to see charges and to print out the charges.

Budget Management

Limits the telephone usage to a pre-assigned amount.

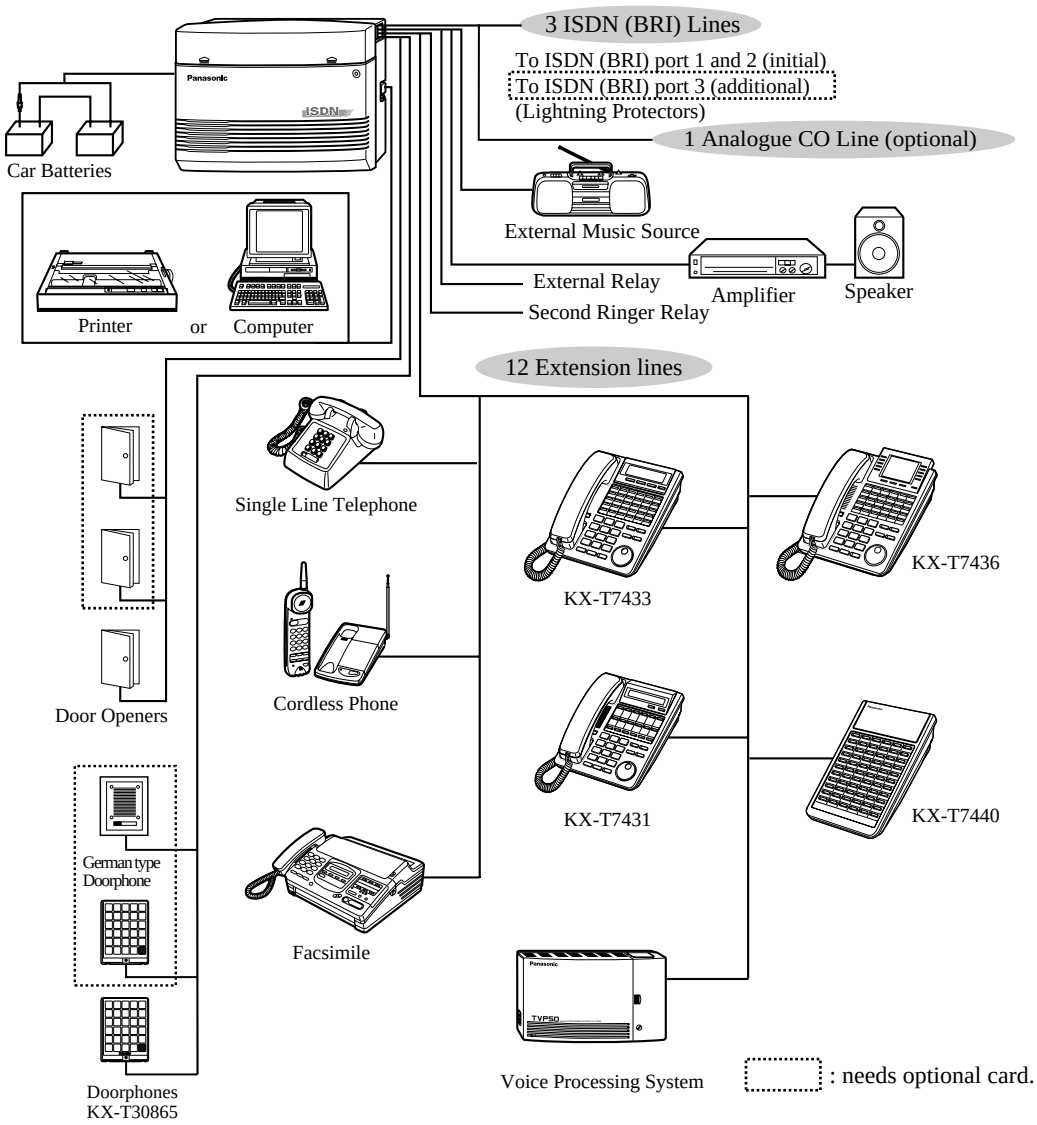
Uniform Call Distribution (UCD)

Allows incoming calls to be distributed uniformly to a specific group of extensions.

1.2 System Connection Diagram

1.2.1 System Connection Diagram

The KX-TD612 has a basic capacity of 12 extensions and 2 ISDN (BRI) CO Lines. Each ISDN (BRI) CO Line can support 2 CO lines. It is capable of supporting Panasonic digital proprietary telephones, consoles and single line devices such as single line telephones and facsimiles. To expand its capabilities, the system can be equipped with optional components or customer-supplied peripherals such as external speakers, external music sources (e.g. radios) and door openers.



- It is recommended that the extension of jack 1 is a display proprietary telephone.
- Parallel connection of telephone is possible. Refer to section 2.4.4 EXtra Device Port (XDP)/Parallelled Telephone Connection.
- Extension jacks 1 to 4 are available for eXtra Device Port(XDP) connection. Extension jacks 5 to 8 are only for digital proprietary telephones.

1.3 Specifications

1.3.1 Specifications

General Description

Item	Description		
System Capacity		**Initial**	**Maximum Connections***
	Outside lines	2 ISDN (BRI) (1 ISDN CO + 1 ISDN CO/Extension, 4B Channel)	3 ISDN (BRI) (1 ISDN CO + 2 ISDN CO/Extension, 6B Channel) +1 Analogue CO line
	Extension lines	12 (8 DPT+4 SLT)	12 (8 DPT+4 SLT)
	DSS Console	4	4
	Doorphone	1 (KX-T30865)	3
	Door Opener	1	3
	External Relay	1	1
	External Pager	1	1
	External Music	1	1
	Second Ringer Relay	1	1
	RS-232C Port	1	1
Control Method	Stored Programme Control ROM Control RAM	MC68302 CPU 16 bit, 14.7 MHz 40 Mbit (Flash memory) 8 Mbit (SRAM)	
Switching	Non Blocking PCM Time Sharing Switch		
Power Supplies	Primary Secondary	110 V AC-240 V AC, 50 Hz/60 Hz Circuit Volt (+5 V, +26 V, -15 V)	
Internal Dialling	Pulse (10 pps, 20 pps), Tone (DTMF)		
Connector	ISDN (BRI) lines Extension Doorphone	RJ45 Modular Connector (8-pin) Terminal Block Terminal Block	
Extension Cable	Initial 2 Pair Wire (L, A, B, H) (Extension Port 1-4) 1 Pair Wire (L, H) (Extension Port 5-8)		
SMDR (Station Message Detail Recording) Interface	Interface Output Equipment Detail Recording	Serial Interface (RS-232C) (D-SUB, 9-pin) Printer Date, Time, Extension Number, Call Duration, Account Code	

Item	Description
Station Loop Limit	Digital Proprietary Telephones 40 Ω Single Line Telephones KX-TD7310/KX-TD7315 600 including set Doorphones 20 Ω
Minimum Leakage Resistance	15,000 Ω
Maximum Number of Station Instruments Per Line	1 for a digital proprietary telephone or a single line telephone. 2 for by parallel connection of a digital proprietary telephone and a single line telephone.
Ring Voltage	80 Vrms at 25 Hz depending on the Ringing Load
Primary Power	110 V AC-240 V AC, 50 Hz/60 Hz, 58 W (max.) (When power is off by the power switch: 1.2 W)
Backup Batteries	Total voltage: 24 V DC Maximum Current: 2.3 A
Central Office Loop Limit	1,600 Ω max.
Environmental Requirements	0 °C-40 °C, 10 %-90 % relative humidity (no condensation)
Door Opener	60 V DC, 1 A (max.)/40 V AC, 1 A (max.)
Second Ringer Relay	60 V DC, 1 A (max.)/40 V AC, 1 A (max.)
External Relay	60 V DC, 1 A (max.)/40 V AC, 1 A (max.)

* Install the KX-TD61280 for expansion of ISDN (BRI) CO lines, KX-TD61281/KX-TD61283 for expansion of an analogue CO line, and the KX-TD61260/KX-TD61261 for expansion of doorphones.
* When an analogue CO expansion card is installed, the maximum connection of a doorphone or a door opener is 1 for each.

System Data

Item	Maximum Quantity
Operator	2
System Speed Dialling	500
Station Speed Dialling	10 per extension
Call Park Areas	10
Toll Restriction Classes	8

Item	Maximum Quantity
Extension Groups	8
Class of Service	8
Hunting Group	32

Section 2

Installation

This section contains the basic system installation and wiring instructions, as well as how to install the optional cards.

2.1 Before Installation

2.1.1 Before Installation

Please read the following notes concerning installation and connection before installing the system.

Safety Installation Instructions

When installing telephone wiring, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
3. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
4. Use caution when installing or modifying telephone lines.

Installation Precautions

This system is exclusively made for wall mounting only. Avoid installing in the following places. (Doing so may result in malfunction, noise, or discoloration.)

1. In direct sunlight and hot, cold, or humid places. (Temperature range: 0 °C – 40 °C)
2. Sulfuric gases produced in areas where there are thermal springs, etc. may damage the equipment or contacts.
3. Places in which shocks or vibrations are frequent or strong.
4. Dusty places, or places where water or oil may come into contact with the system.
5. Near high-frequency generating devices such as sewing machines or electric welders.
6. On or near computers, telexes, or other office equipment, as well as microwave ovens or air conditioners. (It is preferable not to install the system in the same room with the above equipment.)
7. Install at least 1.8 m away from radios and televisions (both the system and Panasonic digital proprietary telephones).
8. Do not obstruct area around the system (for reasons of maintenance and inspection — be especially careful to allow space for cooling above and at the sides of the system).

Wiring Precautions

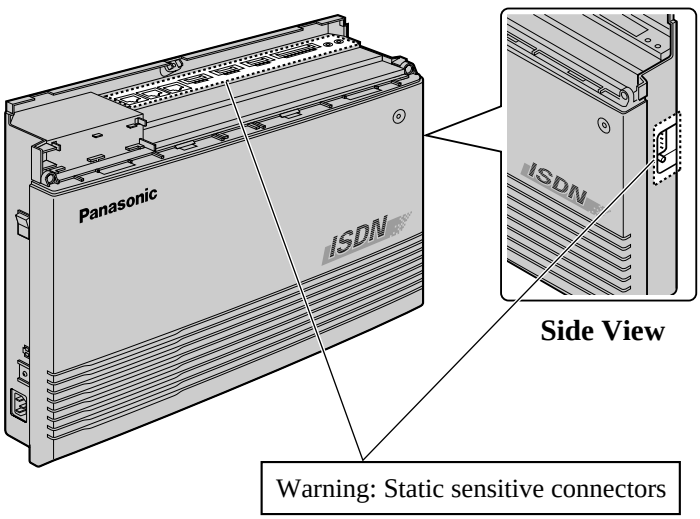
Be sure to follow these instructions when wiring.

1. Do not wire the telephone cable in parallel with an AC power source, computer, telex, etc. If the cables are run near those wires, shield the cables with metal tubing or use shielded cables and ground the shields.

2. If cables are run on the floor, use protectors or the like to protect the wires where they may be stepped on. Avoid wiring under carpets.
3. Avoid using the same power supply outlet for computers, telexes, and other office equipment. Otherwise, the system operation may be interrupted by the induction noise from such equipment.
4. Please use one pair telephone wire for extension connection of (telephone) equipment such as single line telephones, answering machines, computers, voice processing systems, etc., except Panasonic digital proprietary telephones (KX-T7436, KX-T7235 etc.).
5. Unplug the system during wiring. After all the wiring is completed, plug in the system.
6. Mis-connection may cause the system to operate improperly. Refer to section 2.2.5 ISDN (BRI) CO Line Connection Structure.
7. Mis-wiring may cause the system to operate improperly. Refer to section 3.1.1 Installation and section 3.1.2 Connection.
8. If an extension does not operate properly, disconnect the telephone from the extension line and then connect again, or turn off the power switch of the system and turn on again.
9. The system is equipped with a 3-wire grounding type plug. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
10. Use an ISDN (BRI) line cord (Straight type) for CO line connection.
11. CO lines should be installed with lightning protectors. For details, refer to section 2.4.2 Lightning Protector Installation.

WARNING

Static sensitive devices are used. To protect printed circuit boards from static electricity, do not touch connectors indicated to the left. To discharge body static, touch the ground or wear a grounding strap.



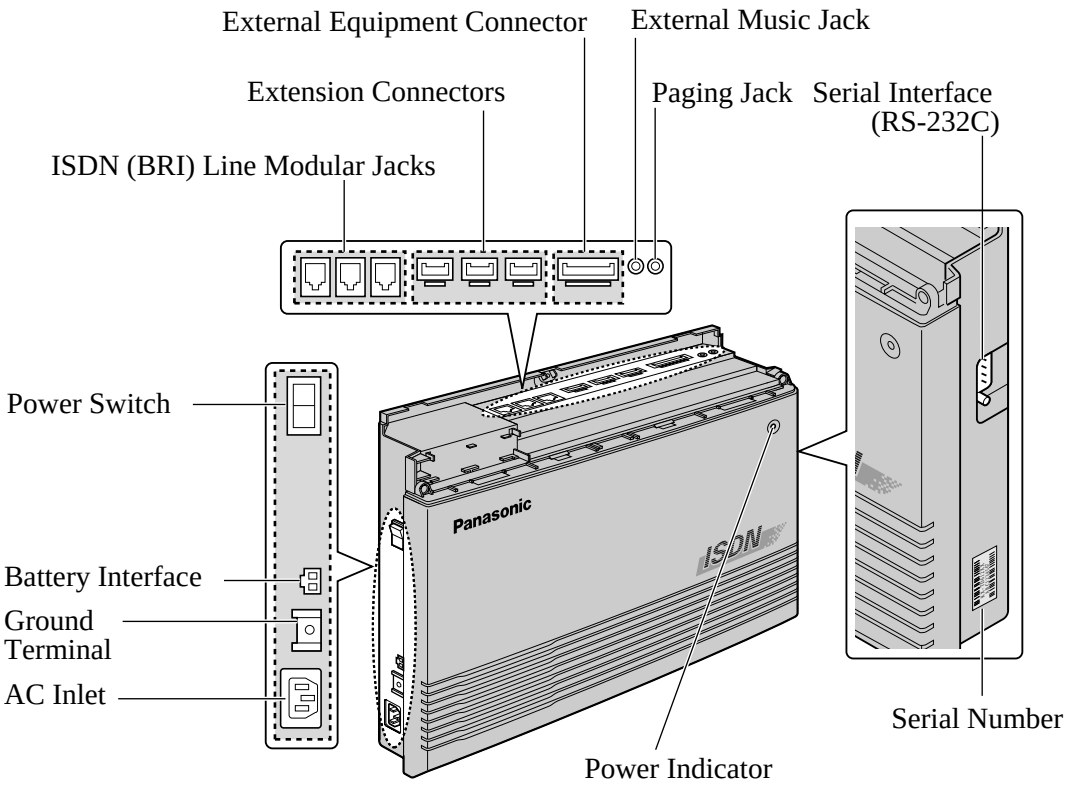
2.2 Installation of the Main Unit

2.2.1 Unpacking

Unpack the box and confirm the items below.

Main Unit	1
AC Cord	1
Screws (for wall mounting)	3
Washers (for wall mounting)	3
Pin Plug	2
8-pin Terminal Block (for extensions)	3
10-pin Terminal Block (for external equipment)	1

2.2.2 Names and Locations

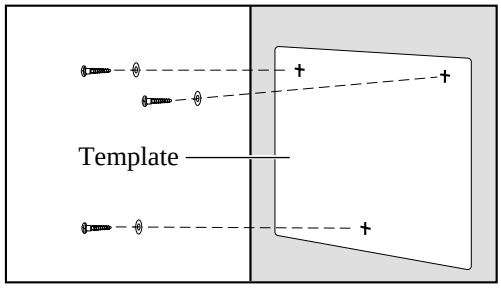


2.2.3 Wall Mounting

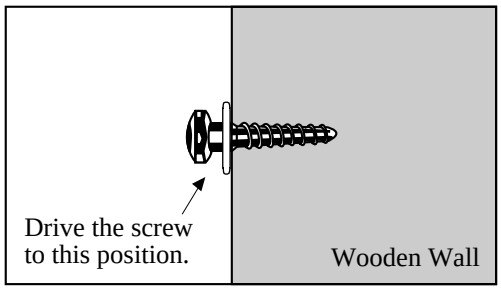
This unit is exclusively made for wall mounting only. The wall where the main unit is to be mounted must be able to support the weight of the main unit. If screws other than the ones supplied are used, use the same-sized diameter screws as the enclosed ones. Two ways of mounting are shown below.

Mounting on a Wooden Wall

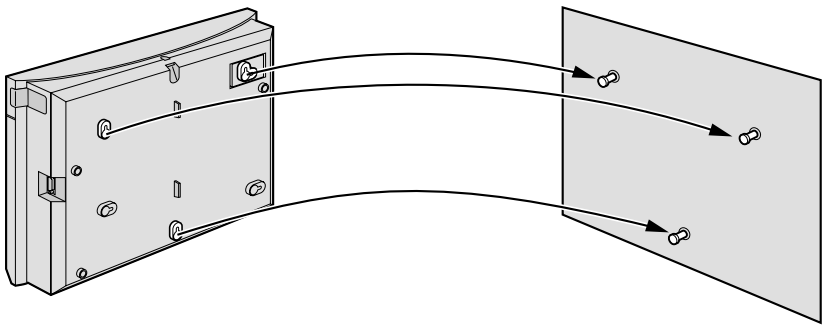
1. Place the template on a wall to mark the screw positions.



2. Install the screws and washers (included) into the wall.

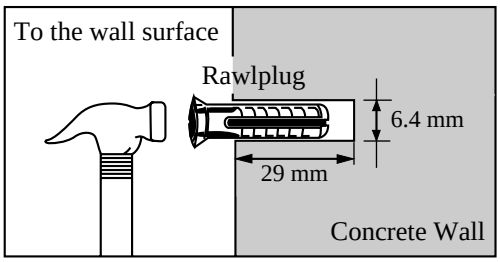


3. Hook the main unit on the screw heads.

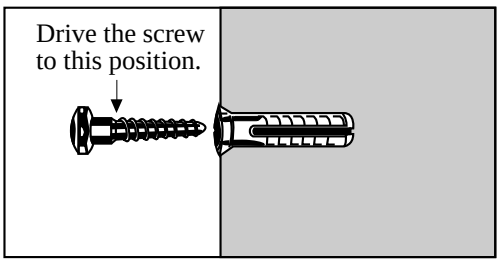


Mounting on a Concrete or Mortar Wall

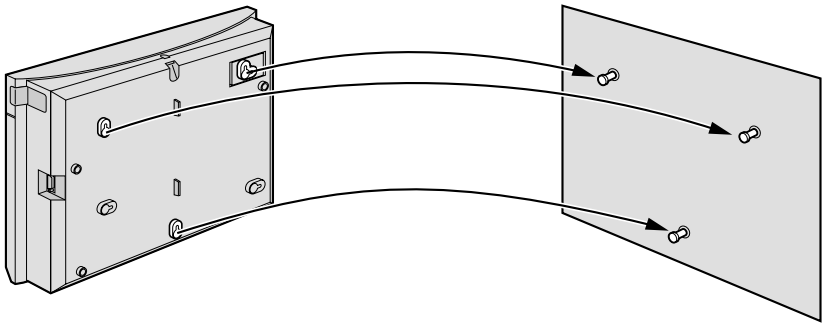
1. Place the template on a wall to mark the screw positions.
2. Drill holes and drive the rawlplugs (user-supplied) with a hammer, flush to the wall.



3. Install the screws (included) into the rawlplugs.



4. Hook the main unit on the screw heads.

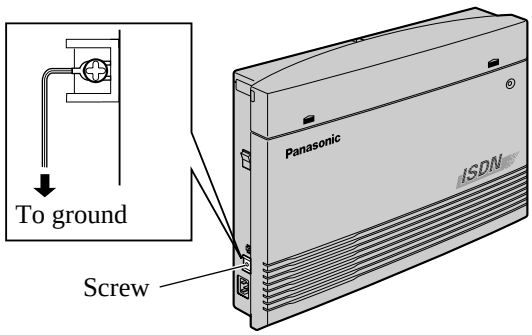


2.2.4 Frame Ground Connection

IMPORTANT!!!

Connect the frame of the main unit to the ground.

1. Loosen the screw.
2. Insert the grounding wire (user-supplied).
3. Tighten the screw.
4. Connect the grounding wire to ground.

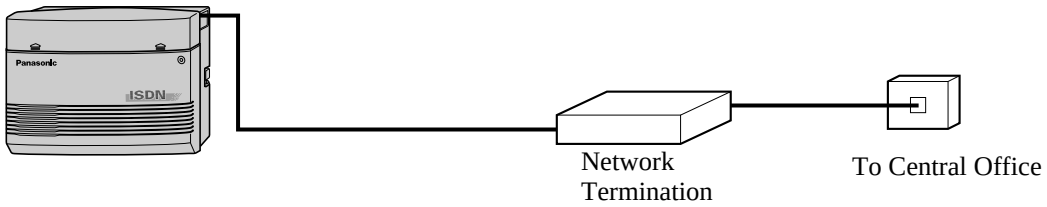


- The proper grounding (connection to the earth ground) is very important to protect the system from the bad effect of external noise or to reduce the electric shock of a lightning strike.
- The GND pin of the 3-pin type AC cable has an effect against the external noise or the lightning strikes, but it may not be enough to protect the system. A complete connection of the GND terminal of the PBX system to the earth ground is strongly recommended.

2.2.5 ISDN (BRI) CO Line Connection Structure

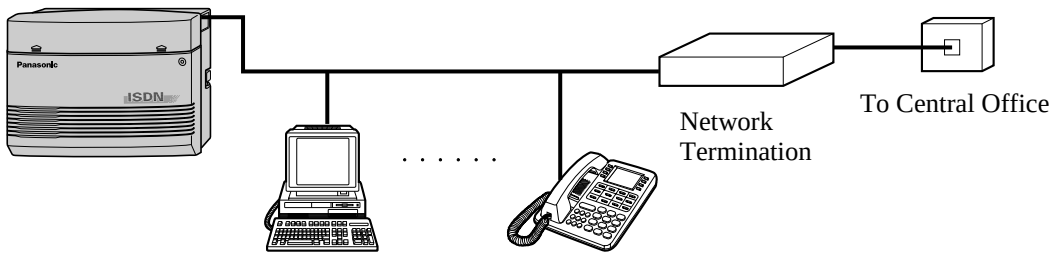
The possible connection structures of ISDN (BRI) CO Line, depending on the contract, are shown below. Because the terminal resistor (TR) must be placed at the end of the connection, we recommend the A or B-1 connection. (Your system has a TR (100 Ω) included.)

A: When your contract is point-to-point

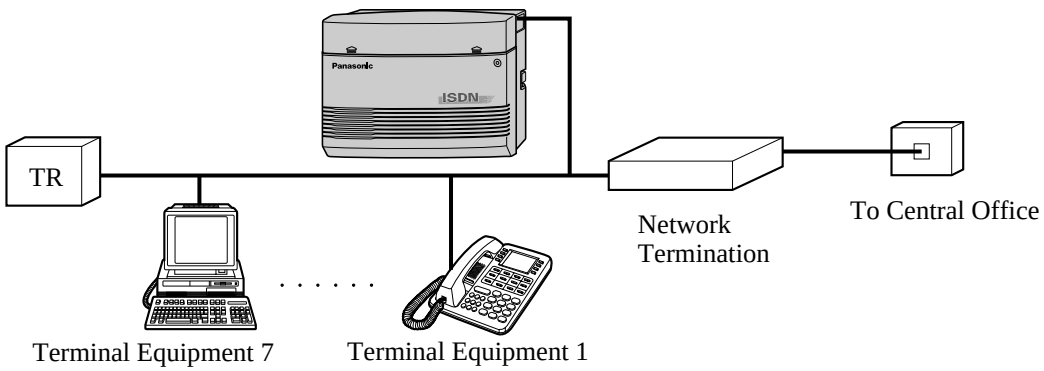


B: When your contract is point-to-multipoint

B-1) Your system is at the end of the connection



B-2) Your system is not at the end of the connection

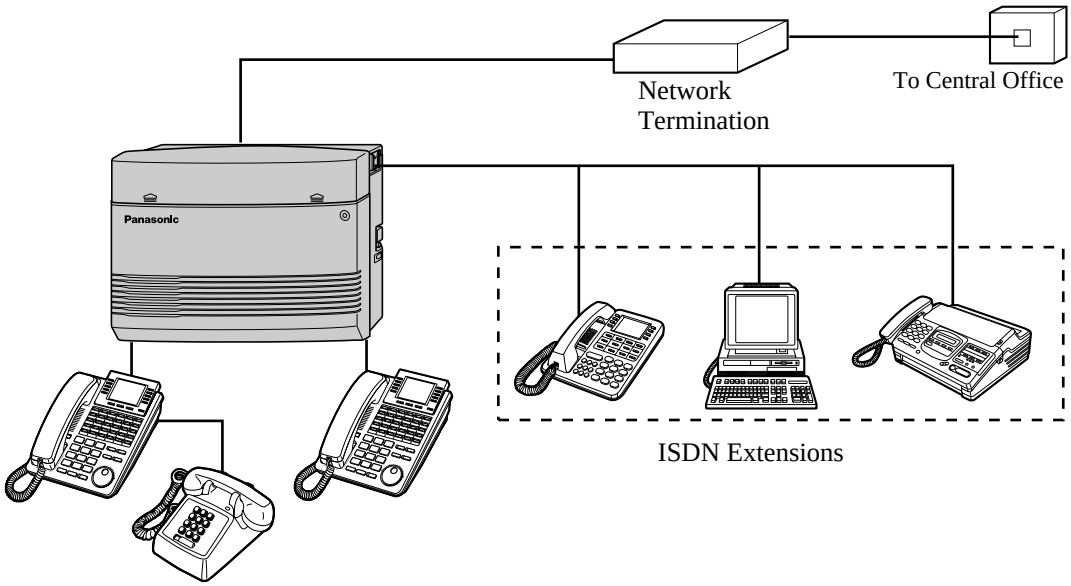


CAUTION

Please consult your dealer to make a B-2 connection to remove TR on a printed circuit board (PCB) in your system.

2.2.6 ISDN Extension Connection Structure

The possible connection structure of ISDN extension lines is shown below. ISDN extensions include ISDN terminal units such as telephones, Facsimiles or personal computers connected to the ISDN (BRI) ports (port 2 and port 3) on the main unit KX-TD612. A maximum of 8 ISDN extensions can be connected to each ISDN (BRI) port.



- Be sure to place terminal resistor (100 Ω) at the end of the connection. If the unit at the end of the connection has terminal resistor, terminal resistor in another units should be removed.

2.2.7 System Programming and Diagnosis with Personal Computer

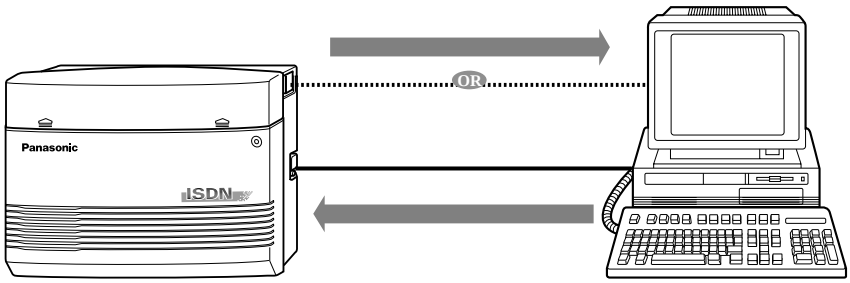
The possible connection structures are shown below.
The system can be programmed and administered using a personal computer (PC) connected to a serial interface (RS-232C) port/ISDN extension port 2 or 3.

Notice

While executing software installation or system data download by PC programming software, do not use the telephone system since software system change or rewriting system data in KX-TD612 would be executed.

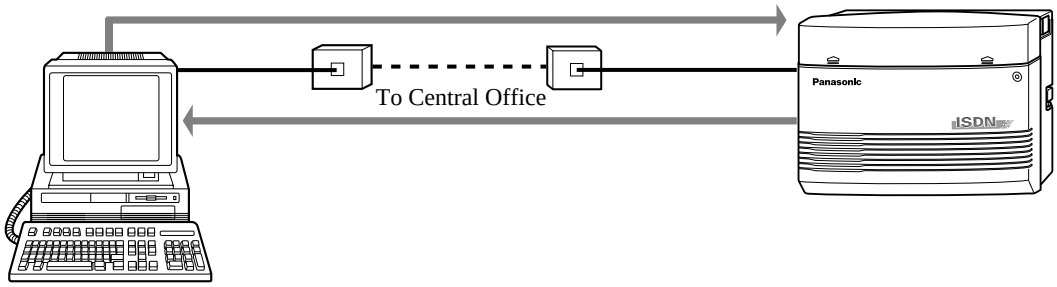
PC Connection Structure

From Your KX-TD612 to PC/From PC to Your KX-TD612



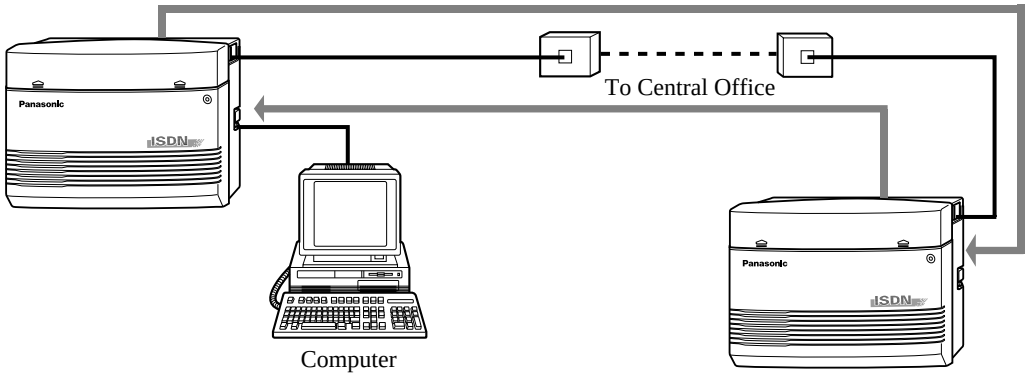
Computer

From Other KX-TD612 to Your PC with ISDN card/From Your PC with ISDN card to Other KX-TD612



Computer

From Your KX-TD612 to Other KX-TD612/From Other KX-TD612 to Your KX-TD612

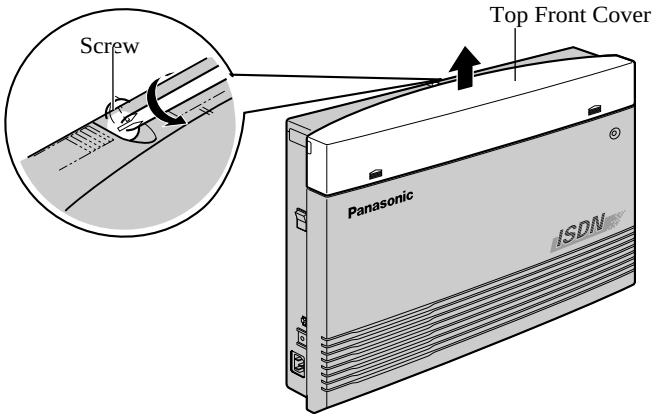


2.3 Opening/Closing Top Front Cover

2.3.1 Opening/Closing Top Front Cover

Opening the top front cover

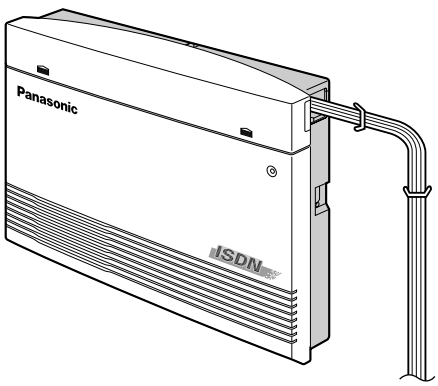
1. Loosen the screw.
2. Remove the top front cover.



- The screw is attached to the top front cover with a spring so that it will not be lost.

Closing the top front cover

1. Replace the covers and tighten the screws.
2. Tie together all of the connected cords and attach them to the wall so that the cords cannot be pulled out of the system.



2.4 Connection

2.4.1 ISDN CO Line Connection

Wire Specifications

In making a line connection, use an ISDN (BRI) CO line cord for installation. The wire specifications for CO lines are as follows:

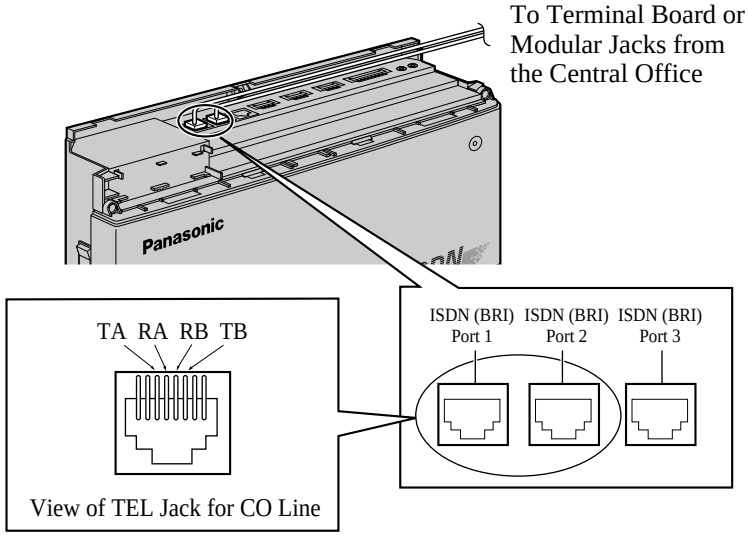
Wire	Solid wire
Diameter of conductor	ø 0.4 mm — ø 0.65 mm
Diameter of insulation	ø 0.66 mm — ø 1.05 mm

Connection

The system has a basic capacity of 2 ISDN (BRI) lines (ISDN (BRI) ports 1 and 2). Each ISDN (BRI) line can support 2 CO lines. ISDN port 1 is only used for CO lines. ISDN port 2 and 3 (option) can be used for CO lines or ISDN extension lines (default: Port 2 — CO/Port 3 — Extension). To use ISDN extension lines, some System Programming and hardware changes are required beforehand.

A: To make 4 CO lines

1. Insert the modular plugs of the ISDN (BRI) line cords (8-conductor wiring) into the ISDN (BRI) ports 1 and 2.
2. Connect the line cords to the terminal board or the modular jacks from the Central Office.

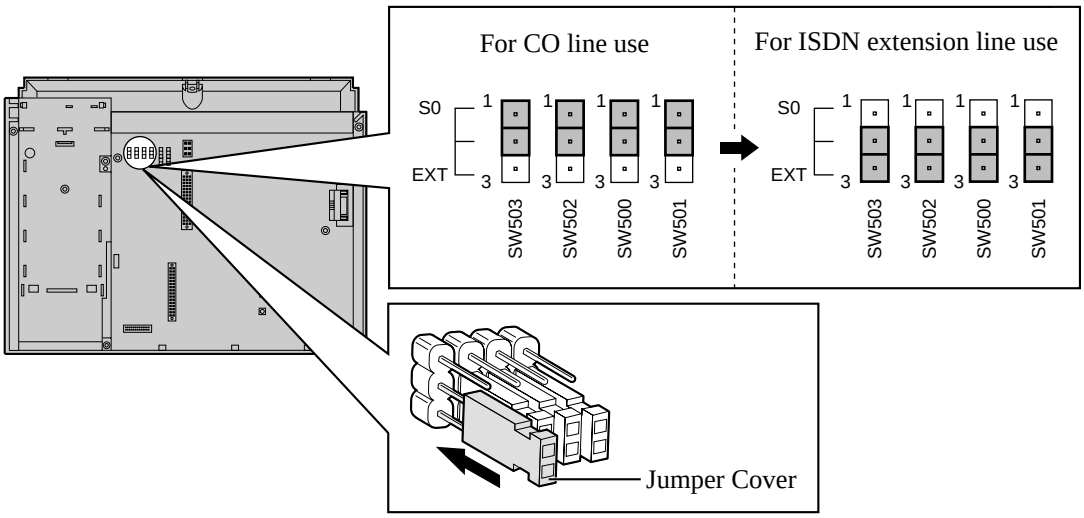


B: To make 2 CO lines (port1) and 8 ISDN extension (port2) lines

CAUTION

Be sure to turn the power switch "OFF" before you change the jumpers.

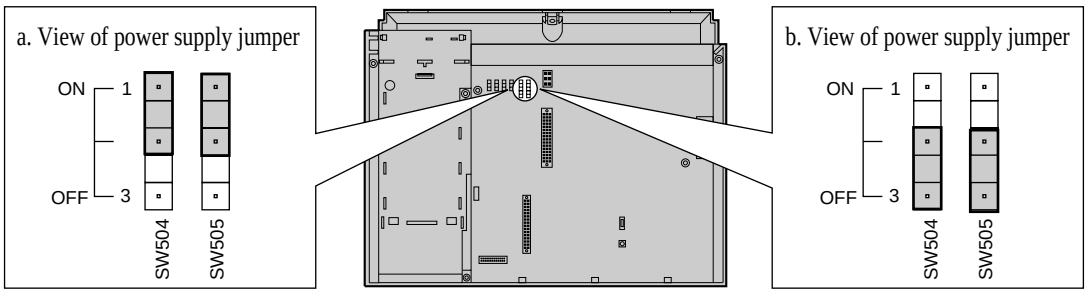
1. Set the jumper covers on the printed circuit board to the "EXT" position as below.



Note

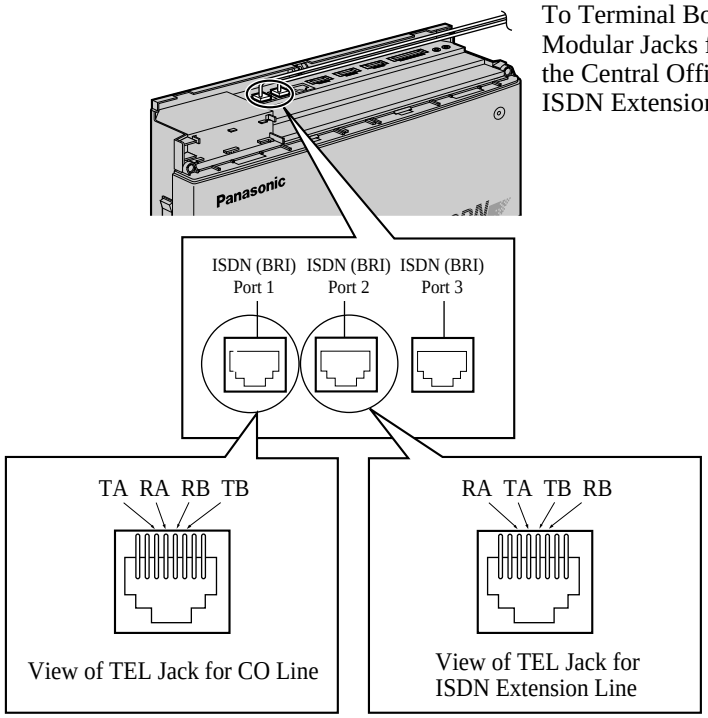
a. To use ISDN extension lines, an external or internal power supply is required. If you use an internal power supply, set the power supply jumper cover to the "ON" position as below.

b. To use ISDN (BRI) ports as CO line ports, set the power supply jumper cover to the "OFF" position.



2. Insert the modular plugs of the ISDN (BRI) line cords (8-conductor wiring) into the ISDN (BRI) ports 1 and 2.

3. Connect the line cord from the ISDN (BRI) port 1 to the terminal board or the modular jack from the Central Office.
Connect the line cord from the ISDN (BRI) port 2 to the ISDN extensions.

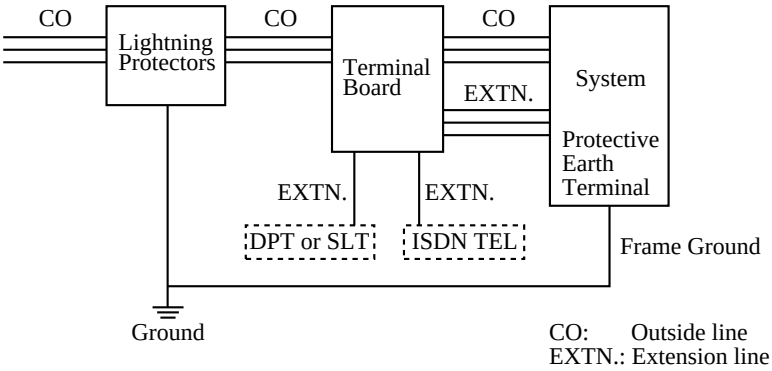

To Terminal Board or Modular Jacks from the Central Office, or ISDN Extensions
Panasonic
ISDN (BRI) Port 1
ISDN (BRI) Port 2
ISDN (BRI) Port 3
TA RA RB TB
View of TEL Jack for CO Line
RA TA TB RB
View of TEL Jack for ISDN Extension Line

- System Programming is required for ISDN (BRI) port 2.
  - [422] ISDN Port Type (Default: Port 1,2 — CO/Port 3 — Extension)
  - [423] ISDN Layer 1 Active Mode (Default: Port 1,2 — Permanent/Port 3 — Call)
  - [424] ISDN Configuration (Default: Port 1,2 — Point/Port 3 — Multipoint)
  - [425] ISDN Data Link Mode (Default: Port 1,2 — Permanent/Port 3 — Call)
  - [426] ISDN TEI Mode (Default: Port 1,2 — Fix 0/Port 3 — Automatic)
- Mis-connection may cause the system to operate improperly. See section 2.2.5 ISDN (BRI) CO Line Connection Structure and section 3.1.2 Connection.

2.4.2 Lightning Protector Installation

A lightning protector is a device to be installed on a CO line to prevent a dangerous surge from entering the building and damaging equipment. A dangerous surge can occur if a telephone line comes in contact with a power line. Trouble due to lightning surges have been showing a steady increase with the development of electronic equipment. In many countries, there are regulations requiring the installation of a lightning protector. A lightning strike to a telephone cable which is 10 m above ground can be as high as 200,000 volts. This system should be installed with lightning protectors. In addition, grounding (connection to earth ground) is very important for the protection of the system.

Installation Diagram

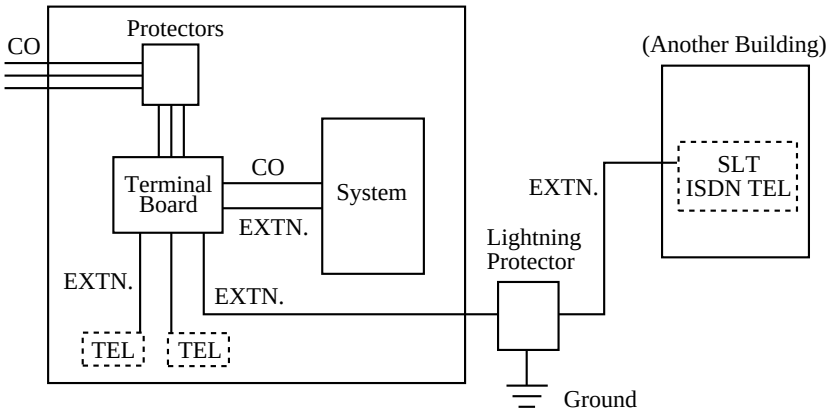


Outside Installation Diagram

If you install an extension outside of the main building, the following precautions are recommended:

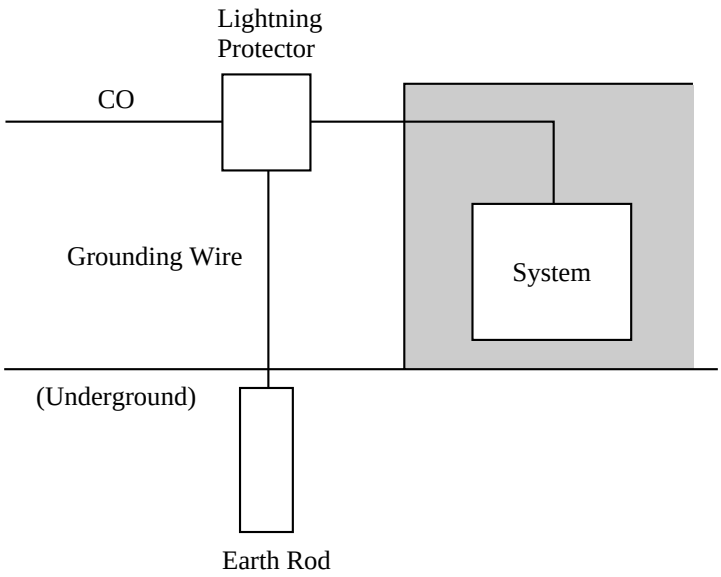
1. Install the extension wire underground.

2. Use a conduit to protect the wire.



Earth Rod Installation Diagram

The length of earth rod and required depth depend on the composition of the soil. Consider the following recommendations:



1. Installation location of the earth rod.....	Near the protector
2. Check obstructions.....	None
3. Composition of the earth rod.....	Metal
4. Depth of the earth rod.....	More than 50 cm
5. Size of the grounding wire.....	Thickness is more than 1.6 mm

Note

- The above example is only a recommendation.
- The length of the earth rod and required depth depend on the composition of the soil.

2.4.3 Extension Connection

Wire Specifications

The required wire specifications are as follows:

Wire	Solid wire
Diameter of conductor	ø 0.4 mm — ø 0.6 mm

2 or 4-conductor wiring is required for each extension as listed below. There are 4 connection pins: "A" (A-wire), "B" (B-wire), "L" (Low) and "H" (High).

Telephone	Wiring
Single line telephones	1 pair wire (A, B)
Digital proprietary telephones	2 pair wire (L, H, A, B)

! If a telephone or answering machine with an A-A1 relay is connected to the system, set the A-A1 relay switch of the telephone or answering machine to the OFF position.

Maximum length of cable

The maximum length of the extension line cord (twisted cable) that connects the system and the extension is as follows:

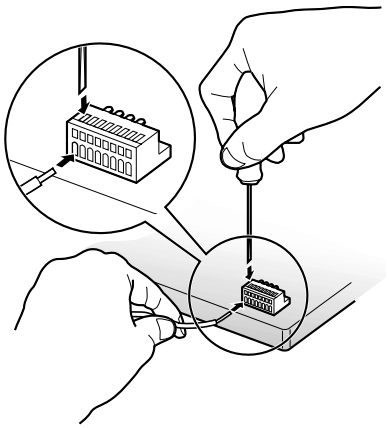
	Diameter	Maximum length
SLT	ø 0.5 mm	620 m
DPT	ø 0.5 mm	240 m

! The maximum length of the cables with the same diameters may vary depending on the types of the cables.

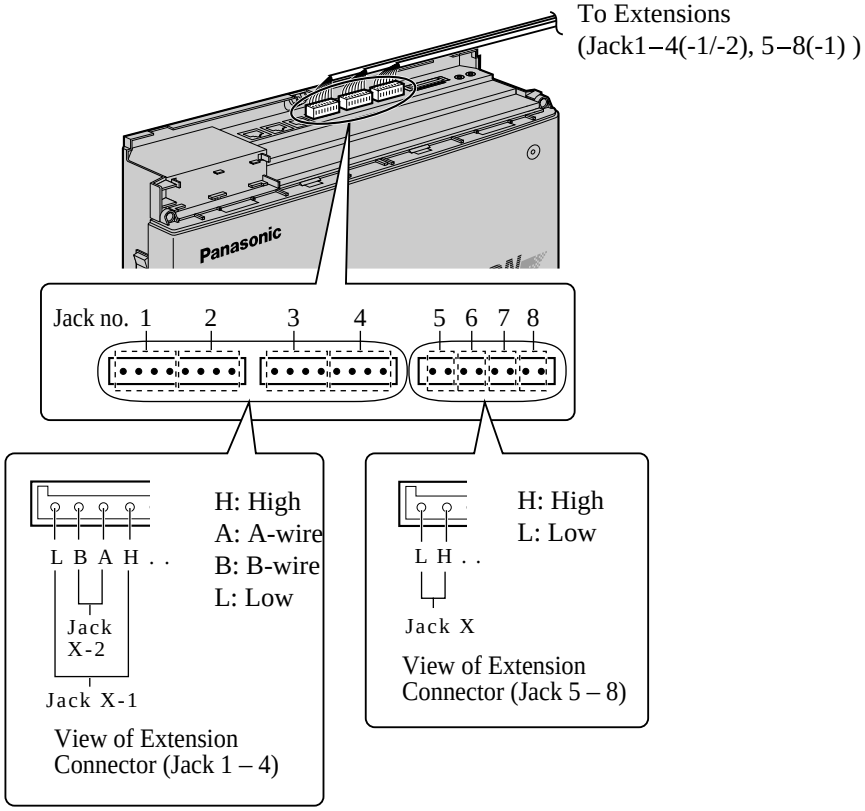
Connection

Use 8-pin terminal blocks (included) to connect the extension lines. Extension jacks 1 to 4 are available for eXtra Device Port (XDP) connection. Extension jacks 5 to 8 are only for digital proprietary telephones.

1. While pressing down on the hole at the top of the terminal block using a screwdriver, insert the required telephone wire into the side hole as shown below.



2. Attach the terminal blocks to the extension connectors on the system.



- Before making the connection of the Extension Connector to the PBX main unit, extension lines should be checked carefully. If the extension lines are connected to the main unit with those wires making a short circuit between the H-L pins or A-B pins, it may cause a malfunction of the system, or may damage the circuit of the PBX system in the worst case.

2.4.4 EXtra Device Port (XDP)/Parallelled Telephone Connection

A Panasonic digital proprietary telephone and a single line telephone, including a facsimile, cordless telephone, etc., can be connected to 1 extension jack in parallel. There are 2 types of parallel connections.

- **EXtra Device Port (XDP)**
  A digital proprietary telephone and a single line telephone can be connected to the same extension jack yet have different extension numbers. System programming is required.

  - Programming Reference
    - [600] EXtra Device Port
  - Feature Reference
    - Extension Group

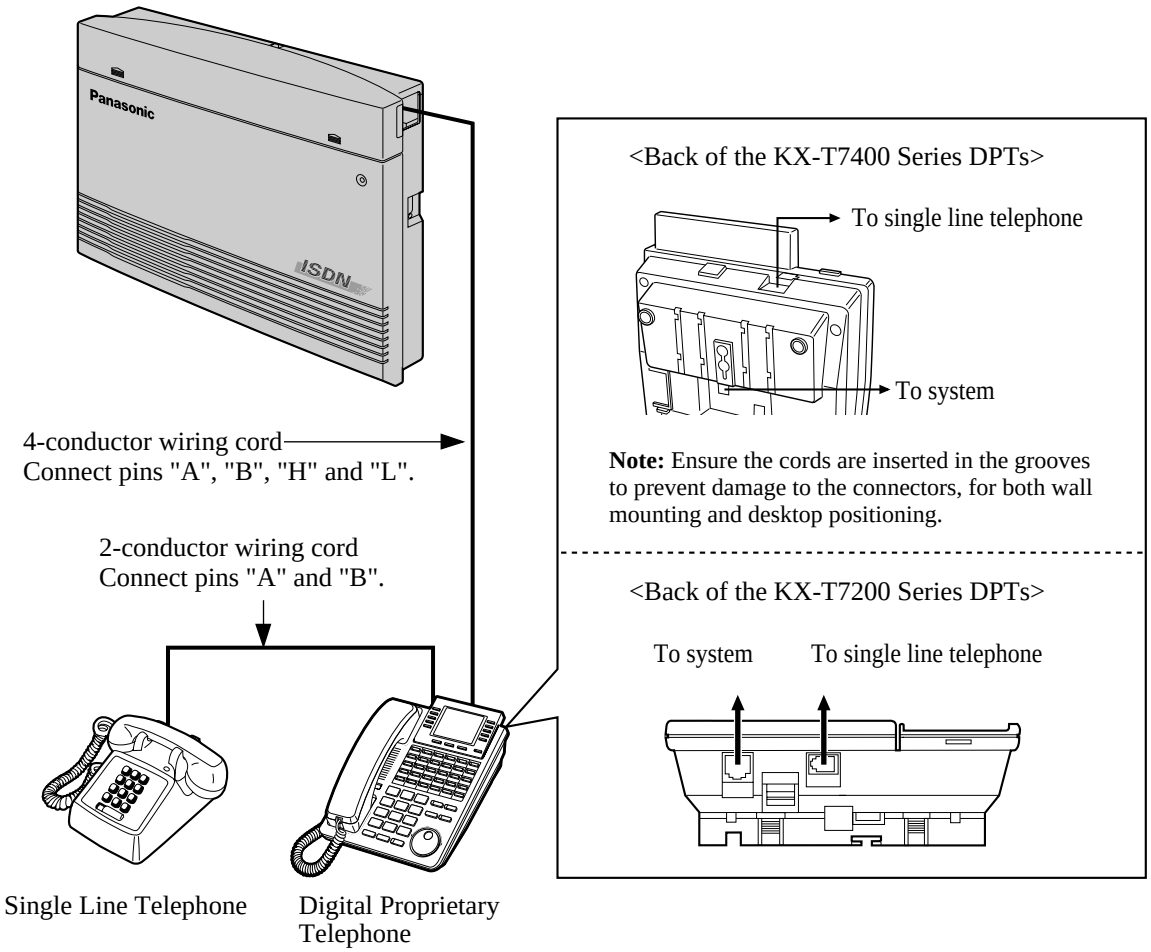
- **Parallelled Telephone Connection**
  Any single line telephone can be connected in parallel with a digital proprietary telephone.

  - Not only a single line telephone but a single line device such as an answering machine, a facsimile or modem (personal computer), etc., can be connected in parallel with a digital proprietary telephone.

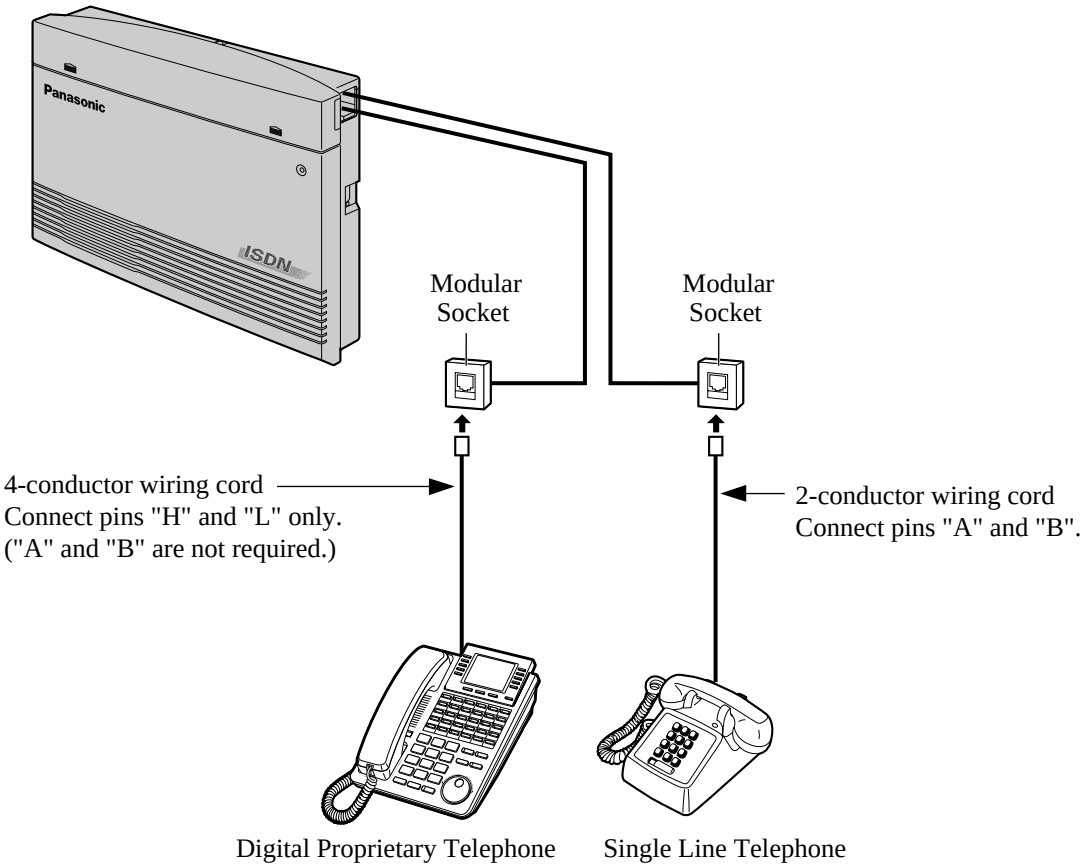
  - Programming Reference
    - Select "Disable" in programming [600] EXtra Device Port and then assign "Ring/No Ring" refering to 2.8.13 Setting the Parallel Connected Telephone Ringer (Parallelled Telephone) in User Manual.
  - Feature Reference
    - Parallelled Telephone

Three examples of the connections are shown below. System programming is required to determine the type of connection.

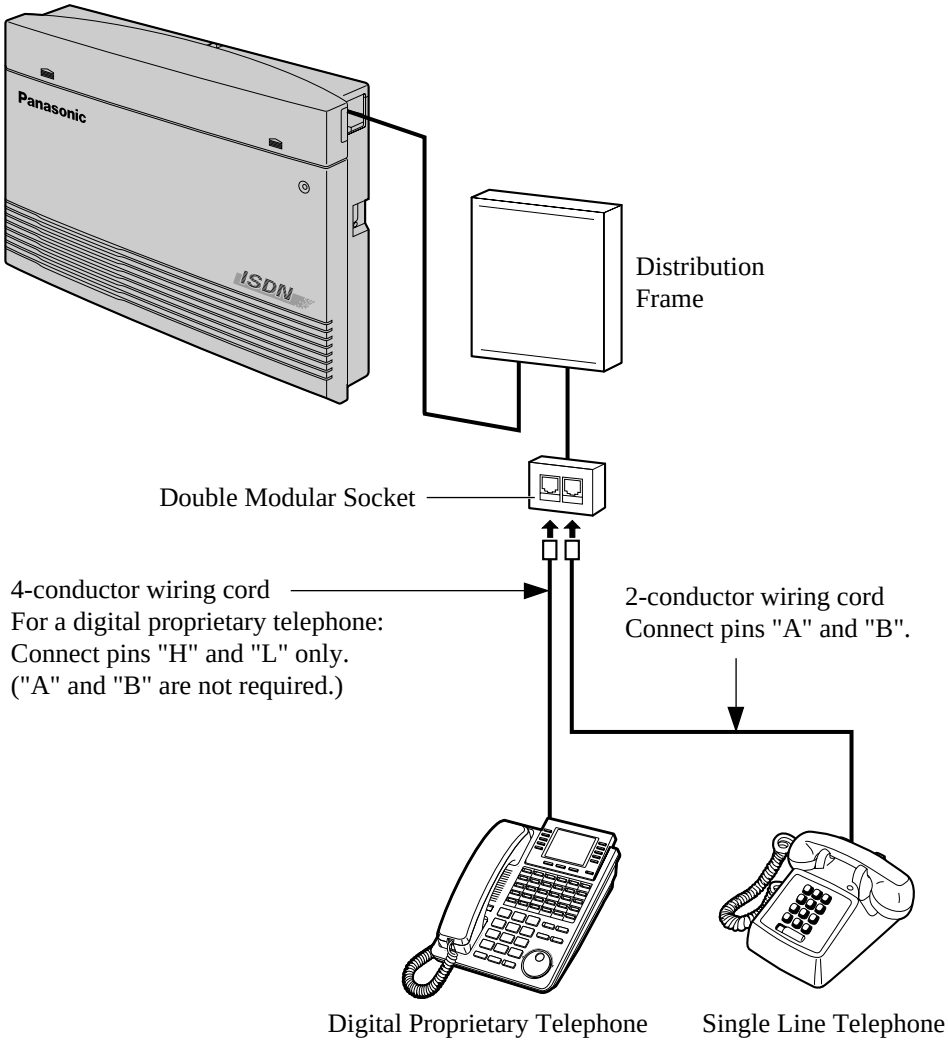
Method 1: Using a DPT Jack



Method 2: Connection through the Modular Socket



Method 3: Using a Modular T-Adaptor



2.4.5 Doorphone and Door Opener Connection

One doorphone (KX-T30865) and 1 door opener (user-supplied) can be connected to the system. For doorphone connection, prepare as below.

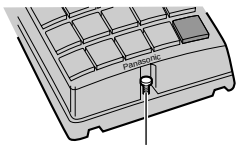
Maximum cable length

The maximum length of the doorphone and door opener line cord that connects the system is as follows:

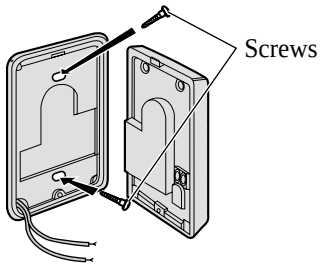
Diameter	0.6 mm
Maximum length	180 m

Installing the Doorphone

1. Loosen the screw to separate the doorphone into two halves.



2. Attach the base cover to a wall using two screws.



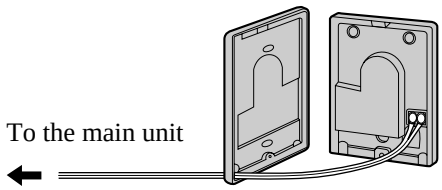
Note

Two kinds of screws are packed with KX-T30865. Please choose the appropriate one for your wall type.

---- Type 1: When a doorphone plate has been fixed to the wall.

------ Type 2: When you wish to install the doorphone directly to the wall.

3. Connect the wires from the main unit to the screws located in the front cover.

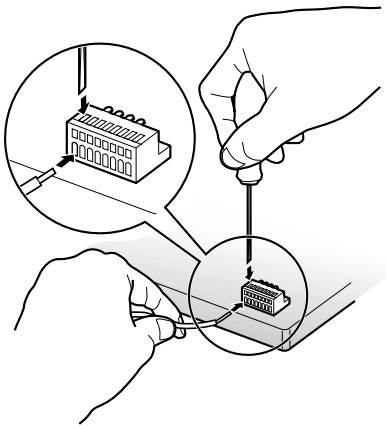


4. Re-attach the two halves and re-insert the screw.

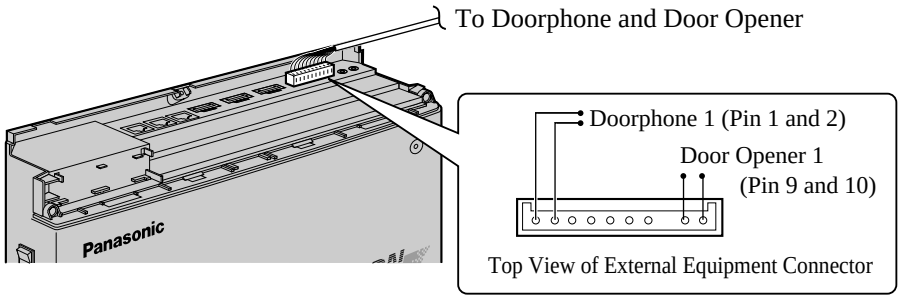
Connection

Use a 10-pin terminal box (included) for connection.

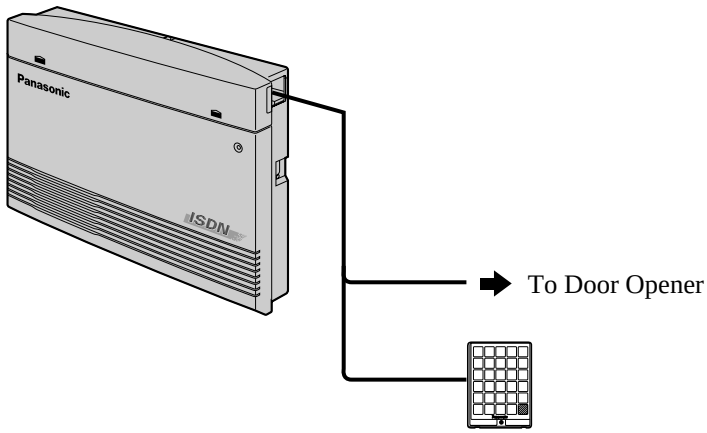
1. While pressing down on the hole at the top of the terminal block using a screwdriver, insert the telephone wire into the side hole as shown below.



2. Attach the terminal block to the external equipment connector on the system.


To Doorphone and Door Opener
Panasonic
Doorphone 1 (Pin 1 and 2)
Door Opener 1
(Pin 9 and 10)
Top View of External Equipment Connector

3. Connect the line cords to the doorphone and door opener.



Doorphone
(KX-T30865)

- Please see "Section 1.3.1 Specifications" for the current rating of the door opener contacts.

- Programming Reference
  - [122] Automatic Door Open Assignment
  - [607-608] Doorphone Ringing Assignment — Day/Night
- Feature Reference
  - Door Opener
  - Doorphone Call

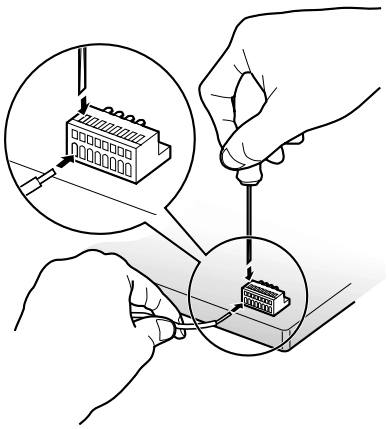
2.4.6 External Relay and Second Ringer Relay Connection

This PBX has 1 internal relay (with normally-closed and normally-open contacts) to control external equipment which is user-supplied; in all KX-TD612 documentation, the external equipment is called "External Relay".
This PBX also has 1 internal relay to control a second ringer which is user-supplied; in all KX-TD612 documentation, this second ringer is called "Second Ringer Relay". Never exceed the current ratings of the relay contacts. Please see the current ratings in "1.3.1 Specifications".

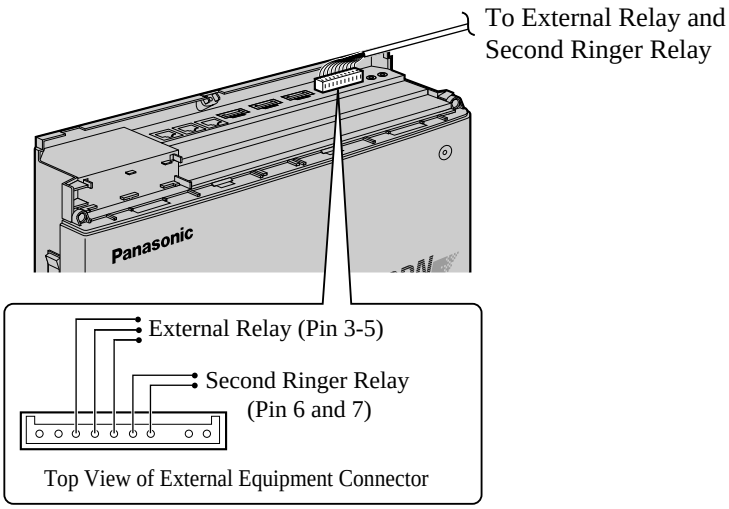
Connection

Use a 10-pin terminal block (included) for connection.

1. While pressing down on the hole at the top of the terminal block using a screwdriver, insert the equipment wire into the side hole as shown below.



2. Attach the terminal block to the external equipment connector on the system.



Note

- Pin 5 is the common terminal. Pin 5/Pin 3 is normally closed and Pin 5/Pin 4 is normally open. When the External Relay is activated, Pin 5/Pin 3 becomes open and Pin 5/Pin 4 becomes closed.
- Pin 6/Pin 7 is normally open. It becomes closed when the ringer relay rings.

3. Connect the equipment cables to the external relay and/or second ringer relay.

- Programming Reference
  - [213] External Relay Connecting Time
  - [512] External Relay Access
- Feature Reference
  - External Relay
  - Second Ringer

2.4.7 External Pager (Paging Equipment) Connection

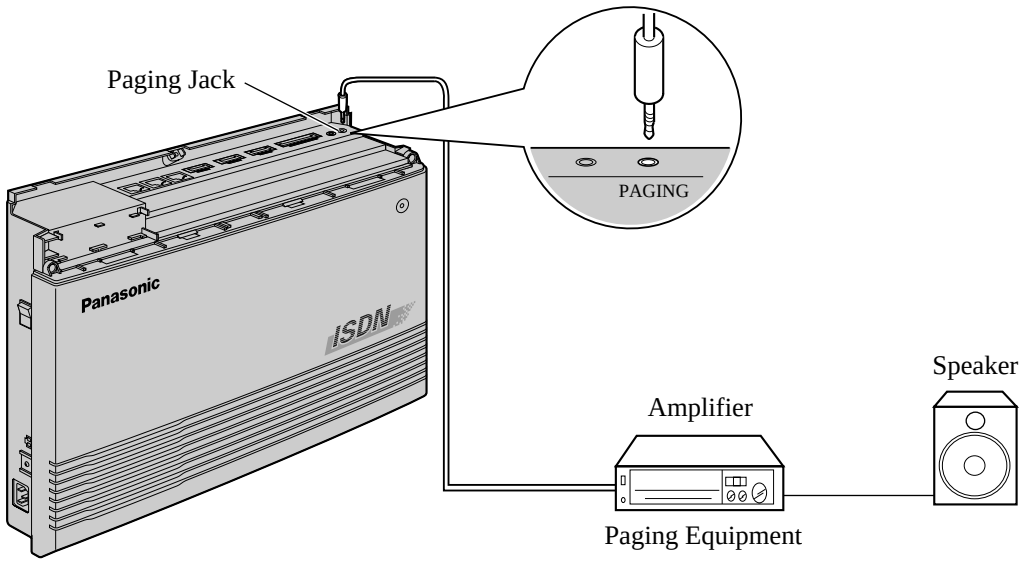
1 external pager (user-supplied) can be connected to the system as illustrated below.

Use an EIAJ RC-6701 A plug (2-conductor, ø 3.5 mm in diameter).

- Output impedance: 600 Ω

Length of cable

18-22 AWG: Under 10 m (Shielded cable is recommended.)



- To adjust the sound level of the pager, use the volume control on the amplifier.

- Programming Reference
  - [804] External Pager BGM
  - [805] External Pager Confirmation Tone
  - [813] Floating Number Assignment
- Feature Reference
  - Background Music (BGM) — External
  - Paging — External
  - Paging — All
  - Trunk (CO Line) Answer From Any Station (TAFAS)

2.4.8 External Music Source Connection

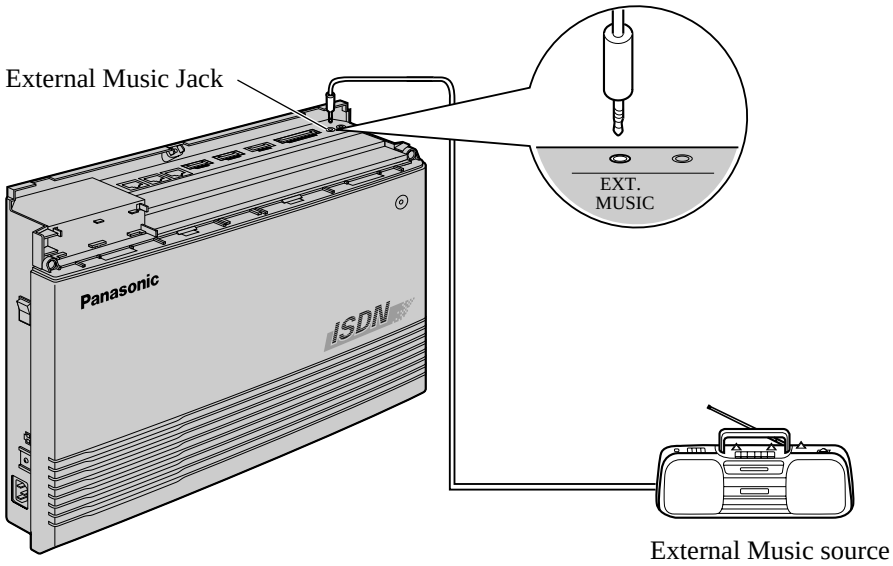
1 music source such as a radio (user-supplied) can be connected to the system as illustrated below.

Insert the plug to the earphone/headphone jack on the external music source.
Use an EIAJ RC-6701 A plug (2-conductor, ø 3.5mm in diameter).

- Input impedance: 600 Ω

Length of cable

18-22 AWG: Under 10 m (Shielded cable is recommended.)

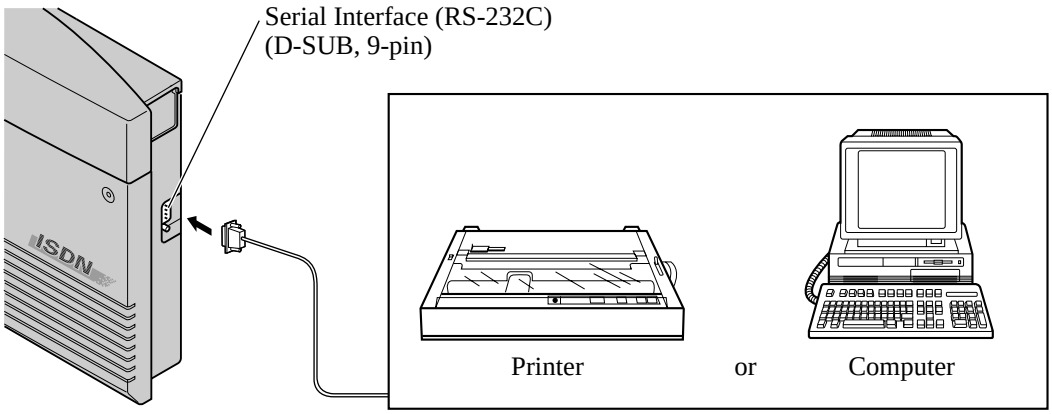


- System programming for music sources used for Music on Hold and Background Music (BGM) is required.
- To adjust the sound level of the Music on Hold, use the volume control on the external music source.

- Programming Reference
  - [803] Music Source Use
  - [804] External Pager BGM
  - [990] System Additional Information, Field (20)
- Feature Reference
  - Background Music (BGM)
  - Background Music (BGM) — External
  - Music on Hold

2.4.9 Printer and PC Connection

A user-supplied printer or personal computer (PC) can be connected to the Serial Interface (RS-232C)(9-pin) on the system. The printer is used to print out the SMDR call records and system programming data. The PC is used for system programming.
Connect the Serial Interface (RS-232C) connector of the printer or the PC to the Serial Interface. The cables must be shielded and the maximum length is 2 m.



Arrange the cables so that the printer or the PC will be connected to the system as shown in the chart on the following page.

- It is possible to perform System Programming using a PC connected to the ISDN extension port 2 or 3 in place of the Serial Interface (RS-232C). Refer to 2.2.6 ISDN Extension Connection Structure and 2.2.7 System Programming and Diagnosis with Personal Computer.

The pin configuration of the Serial Interface (RS-232C) Connector is as follows:

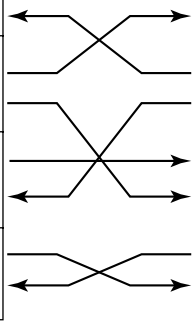
Pin No.	Signal Name		Circuit Type	
			EIA	CCITT
2	RD(RXD)	Received Data	BB	104
3	SD(TXD)	Transmitted Data	BA	103
4	ER(DTR)	Data Terminal Ready	CD	108.2
5	SG	Signal Ground	AB	102
6	DR(DSR)	Data Set Ready	CC	107
7	RS(RTS)	Request To Send	CA	105
8	CS(CTS)	Clear To Send	CB	106

Connection Chart for Printer/IBM®*1 Personal Computer (9-pin)

If you connect a printer or an IBM-PC with a 9-pin Serial Interface (RS-232C) connector to your system, see the chart below.

Serial Interface (RS-232C) port on the system

Circuit Type (EIA)	Signal Name	Pin No.
BB	RD (RXD)	2
BA	SD (TXD)	3
CD	ER (DTR)	4
AB	SG	5
CC	DR (DSR)	6
CA	RS (RTS)	7
CB	CS (CTS)	8



Serial Interface (RS-232C) port on the printer/IBM-PC

Pin No.	Signal Name	Circuit Type (EIA)
2	RD (RXD)	BB
3	SD (TXD)	BA
4	ER (DTR)	CD
5	SG	AB
6	DR (DSR)	CC
7	RS (RTS)	CA
8	CS (CTS)	CB

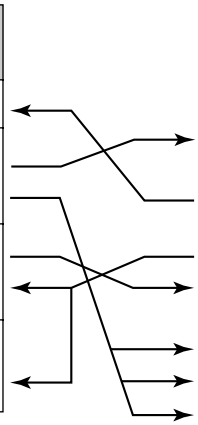
- Depending on the type of PC you have, in order to access the Internet it may be necessary to modify your Serial Interface (RS-232C) Cable. Make this change only when all attempts at Internet access have failed with your PC!
  What to change: Use a cable that has pin 1 electrically connected to pin 6 at both ends. Try again Internet Access.

Connection Chart for Printer/Personal Computer (25-pin)

If you connect a printer or a PC with a 25-pin Serial Interface (RS-232C) connector to your system, see the chart below.

Serial Interface (RS-232C) port on the system

Circuit Type (EIA)	Signal Name	Pin No.
BB	RD (RXD)	2
BA	SD (TXD)	3
CD	ER (DTR)	4
AB	SG	5
CC	DR (DSR)	6
CA	RS (RTS)	7
CB	CS (CTS)	8



Serial Interface (RS-232C) port on the printer/PC

Pin No.	Signal Name	Circuit Type (EIA)
1	FG	AA
3	RD (RXD)	BB
2	SD (TXD)	BA
20	ER (DTR)	CD
7	SG	AB
5	CS (CTS)	CB
6	DR (DSR)	CC
8	CD (DCD)	CF

*1 IBM is a registered trademark of International Business Machines Corporation in the United States.

Serial Interface (RS-232C) Signals

Frame Ground: FG
Connects the unit frame and the earth ground conductor of the AC power cord.

Transmitted Data: SD (TXD): .....**(output)**
Conveys signals from the unit to the printer or the PC. A "Mark" condition is held unless data or BREAK signals are being transmitted.

Received Data: RD (RXD): .....**(input)**
Conveys signals from the printer or the PC.

Request to Send: RS (RTS): .....**(output)**
This lead is held ON whenever DR (DSR) is ON.

Clear To Send: CS (CTS): .....**(input)**
An ON condition of circuit CS (CTS) indicates that the printer or the PC is ready to receive data from the unit. The unit does not attempt to transfer data or receive data when circuit CS (CTS) is OFF.

Data Set Ready: DR (DSR): .....**(input)**
An ON condition of circuit DR (DSR) indicates the printer or the PC is ready. Circuit DR (DSR) ON does not indicate that communication has been established with the printer or the PC.

Signal Ground: SG
Connects to the DC ground of the unit for all interface signals.

Data Terminal Ready: ER (DTR): .....**(output)**
This signal line is turned ON by the unit to indicate that it is ON LINE. Circuit ER (DTR) ON does not indicate that communication has been established with the printer or the PC. It is switched OFF when the unit is OFF LINE.

Data Carrier Detect: CD (DCD): .....**(input)**
The ON condition is an indication to the data terminal (DTE) that the carrier signal is being received.

- Programming Reference
  - [800] SMDR Incoming/Outgoing Call Log Printout
  - [801] SMDR Format
  - [802] System Data Printout
  - [806] RS-232C Parameters
- Feature Reference
  - Station Message Detail Recording (SMDR)
  - System Programming and Diagnosis with Personal Computer
- Internet Driver Manual

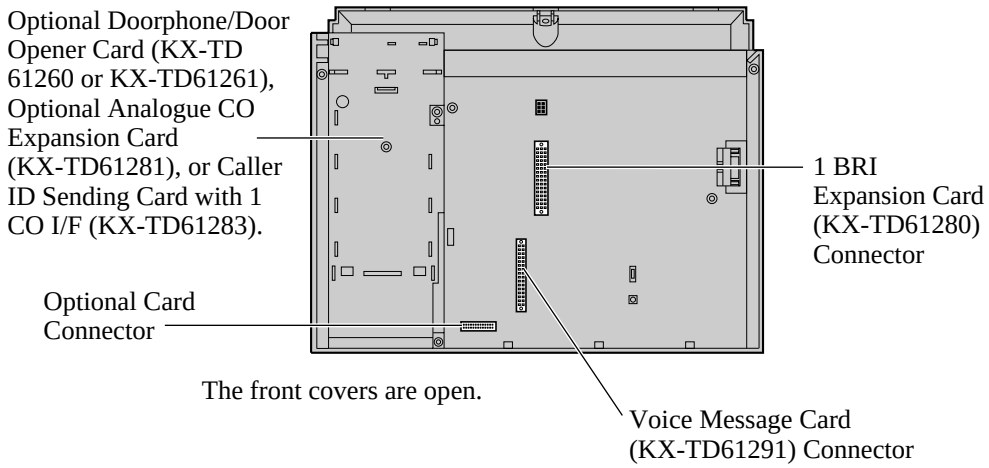
2.5 Optional Cards and Units Installation

2.5.1 Location of Optional Cards

The location of the optional cards is shown below.

Precaution

To protect the printed circuit boards (P-boards) from static electricity, do not touch parts on the P-boards in the main unit and on the optional cards. If accessing the parts is required, wear a grounding strap.


Optional Doorphone/Door Opener Card (KX-TD 61260 or KX-TD61261), Optional Analogue CO Expansion Card (KX-TD61281), or Caller ID Sending Card with 1 CO I/F (KX-TD61283).
1 BRI Expansion Card (KX-TD61280) Connector
Optional Card Connector
The front covers are open.
Voice Message Card (KX-TD61291) Connector

CAUTION

- *Power off the system, and unplug the AC cord before installing an optional card.*

2.5.2 Optional Analogue CO Expansion Card and Caller ID Sending Card with 1 CO I/F Installation

An Analogue CO Expansion Card or Caller ID Sending Card with 1 CO I/F can be installed in the system to add 1 analogue CO line.

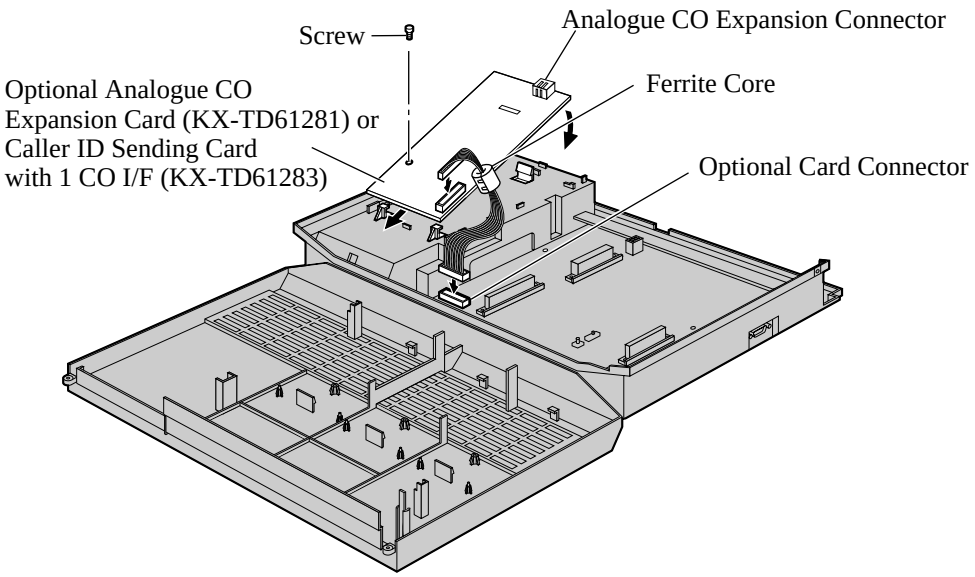
CAUTION

When installing or uninstalling an Analogue CO Expansion Card or Caller ID Sending Card with 1 CO I/F, disconnect the telephone line from the card.

1. Remove the 2 screws.
2. Open the front cover.
3. Attach the optional Analogue CO Expansion Card (KX-TD61281) or Caller ID Sending Card with 1 CO I/F (KX-TD61283) to the system and connect the cord to the connector, then secure the screw as shown below.

Note

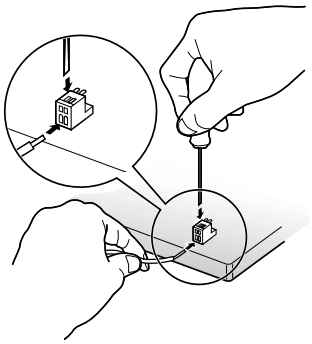
Be sure to connect the cord in such a way that the ferrite core is closer to the optional Analogue CO Expansion Card or Caller ID Sending Card with 1 CO I/F than to the main board. The cord can be installed in the wrong way, so please be careful.


Screw
Analogue CO Expansion Connector
Ferrite Core
Optional Analogue CO Expansion Card (KX-TD61281) or Caller ID Sending Card with 1 CO I/F (KX-TD61283)
Optional Card Connector

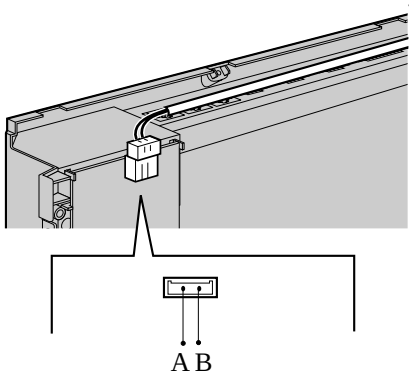
4. Close the cover.

Connection

1. While pressing down on the hole at the top of the terminal block (included) using a screw driver, insert the required wire into the side hole as shown below.



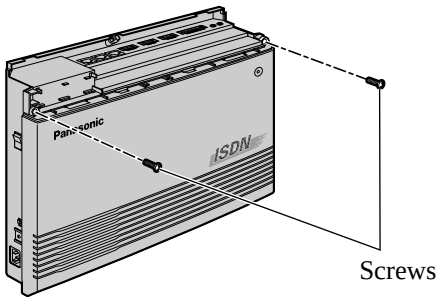
2. Attach the terminal blocks to analogue CO expansion connector.



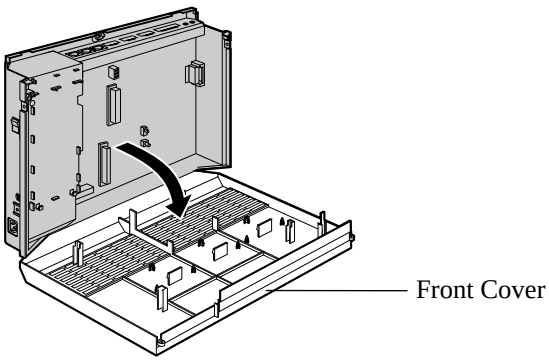
2.5.3 Optional BRI Expansion Card and Voice Message Card Installation

An optional BRI Expansion Card (KX-TD61280) and Voice Message Card (KX-TD61291) can be installed in the system.

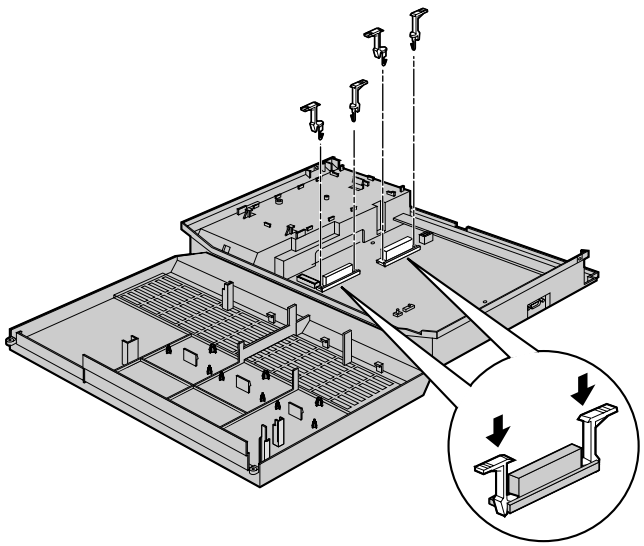
1. Remove the 2 screws.



2. Open the front cover.



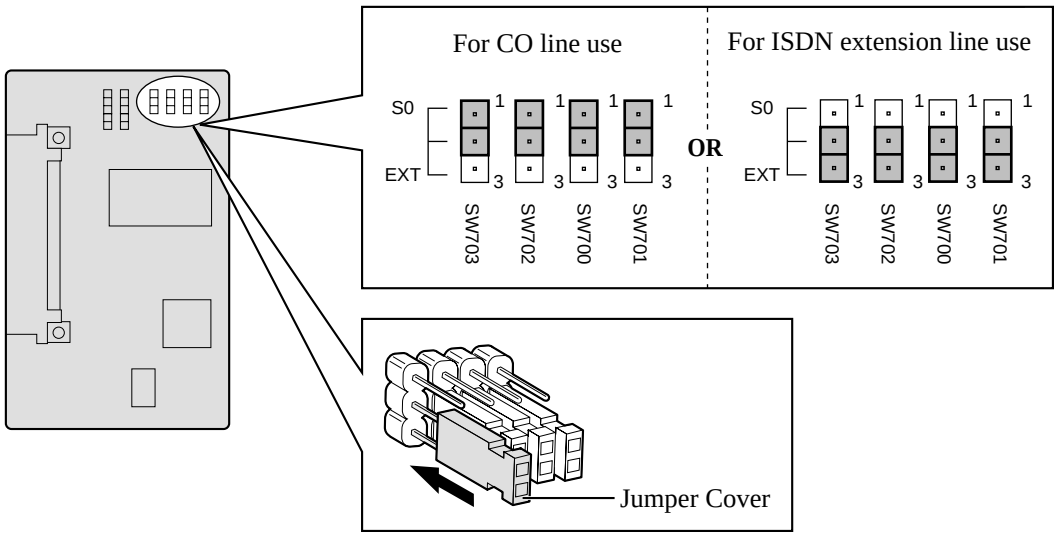
3. Attach the card holders to the optional card connectors.



4. When an BRI expansion card is installed, set the jumper cover on the card to the appropriate position, as shown below.

CAUTION

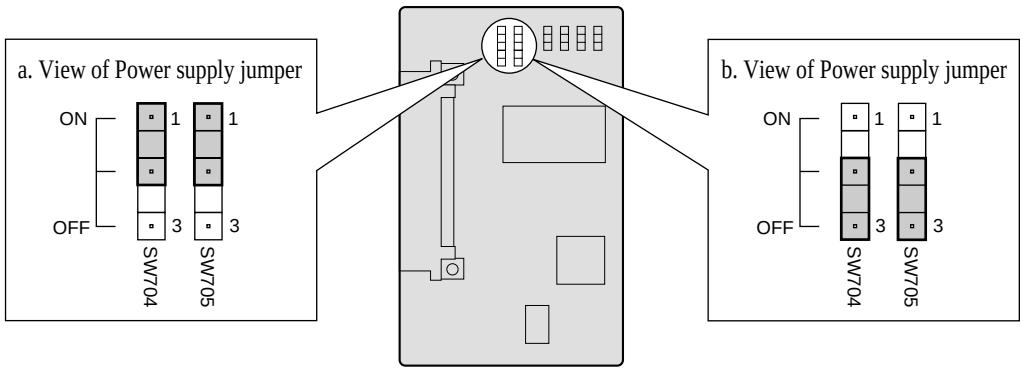
Be sure to turn the power switch "OFF" before you change the jumpers.



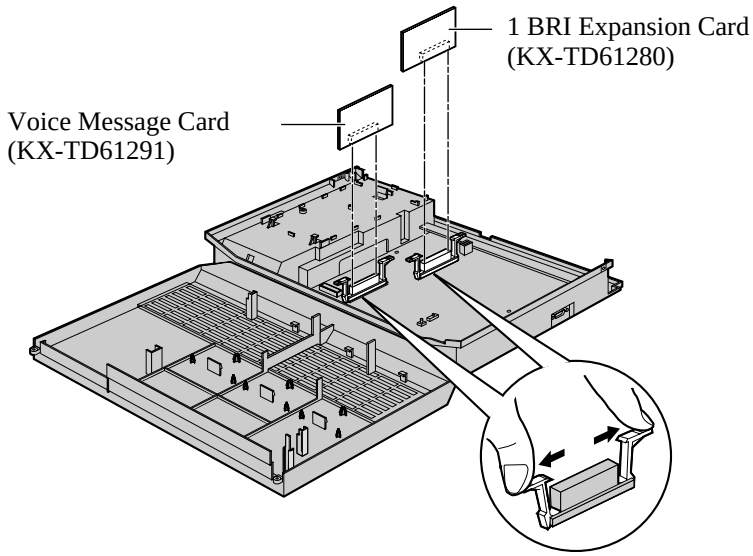
Note

a. To use an ISDN extension line, an external or internal power supply is required. If you use an internal power supply, set the power supply jumper cover to the "ON" position as below.

b. To use the ISDN port as the CO line port, set the power supply jumper cover to the "OFF position.



5. Attach the optional cards to the optional card connectors as shown below.



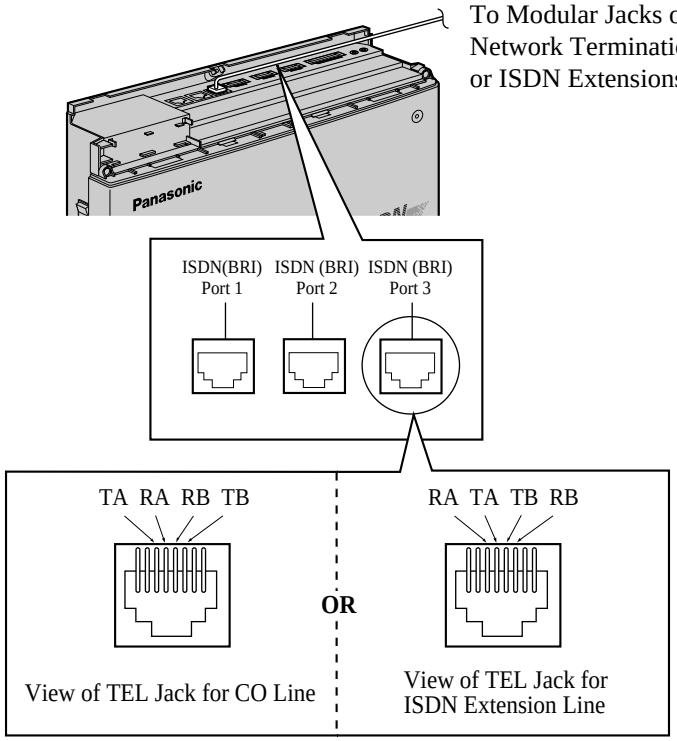
6. Close the cover.

- Programming Reference
  - [820] OGM Recording
- Feature Reference
  - Built-in Voice Message
  - CO Line Connection Assignment
  - CO Line Connection Assignment — Outgoing
  - Direct Inward System Access (DISA)
  - Intelligent Call Handling — Distribution of Incoming Outside Calls
  - Uniform Call Distribution (UCD)

2.5.4 Expanding the ISDN (BRI) Line Connection

After installing the BRI Expansion Card (KX-TD61280), 2 CO lines or 8 ISDN extension lines can be connected on ISDN (BRI) port 3 (default: Extension). To use for ISDN extension lines, some System Programming and hardware changes are required beforehand.

When making a line connection, use an ISDN line cord (straight type) for installation. Insert the modular plug of the ISDN line cord (8-conductor wiring) into ISDN port 3 on the system.



- System Programming is required depending on the port type.

  CO line:
  —[422] ISDN Port Type (Default: Port 1,2 — CO/Port 3 — Extension)
  —[423] ISDN Layer 1 Active Mode (Default: Port 1,2 — Permanent/Port 3 — Call)
  —[424] ISDN Configuration (Default: Port 1,2 — Point/Port 3 — Multipoint)
  —[425] ISDN Data Link Mode (Default: Port 1,2 — Permanent/Port 3 — Call)
  —[426] ISDN TEI Mode (Default: Port 1,2 — Fix 0/Port 3 — Automatic)

  Extension line:
  —Default Setting
- Refer to section 2.4.1 ISDN CO Line Connection for the wire specifications.
- Mis-connection may cause the system to operate improperly. See section 2.2.5 ISDN (BRI) CO Line Connection Structure and section 3.1.2 Connection.

2.5.5 Optional Doorphone/Door Opener Card Installation

There are 2 types of Doorphone/Door Opener Card (KX-TD61260, KX-TD61261). Maximum number of the connectable equipment is shown below.

Doorphone/ Door Opener Card	Doorphone		Door Opener
	German Type	T30865	
KX-TD61260 (Two 5-pin Connectors)	Not available	2	2
KX-TD61261 (Two 8-pin Connectors)	2	Not available	2

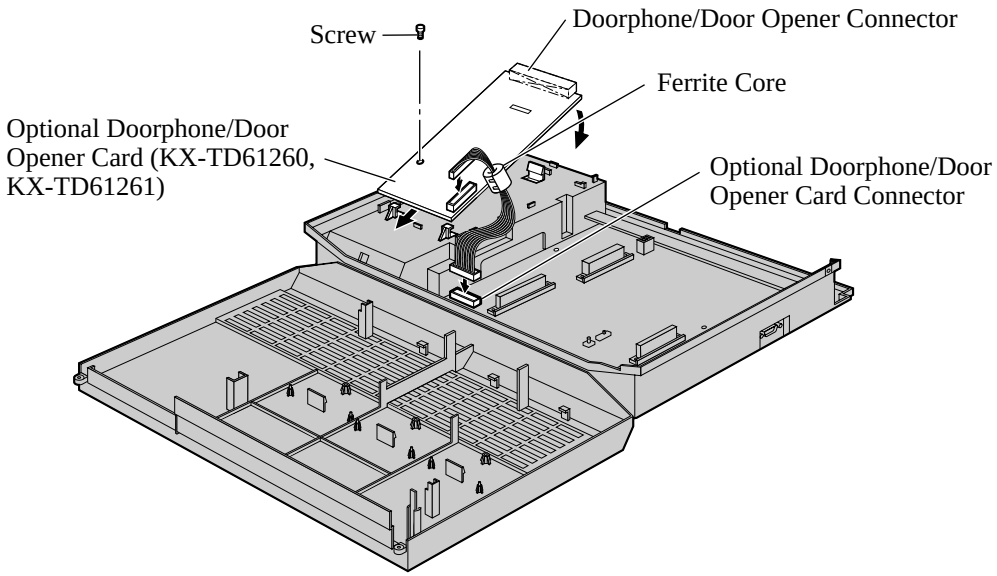
1. Remove the 2 screws.

2. Open the front cover.

3. Attach the optional doorphone/door opener card (KX-TD61260, KX-TD61261) to the system and connect the cord to the connector, then secure the screw as shown below.

Note

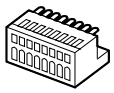
Be sure to connect the cord in such a way that the ferrite core is closer to the optional doorphone/door opener card than to the main board. The cord can be installed in the wrong way, so please be careful.



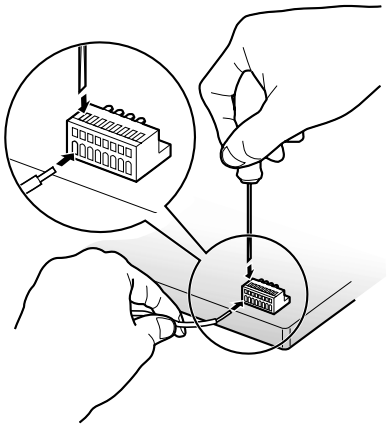
4. Close the cover.

Connection

Unpack the box and confirm the items below.

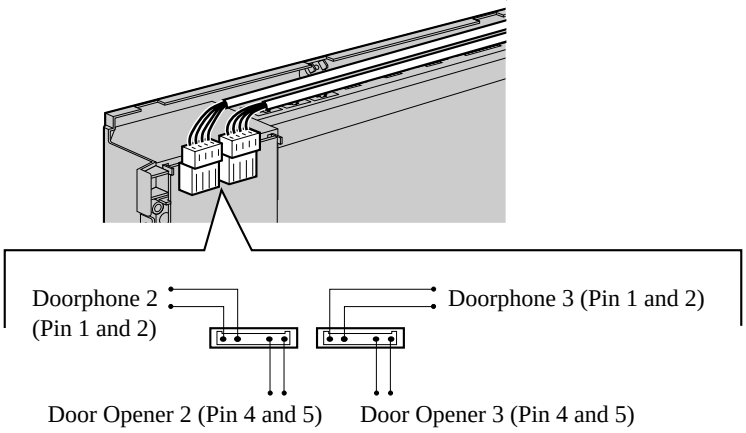
KX-TD61260	Two 5-pin terminal blocks (No pin in the center)	
KX-TD61261	Two 8-pin terminal blocks	

1. While pressing down on the hole at the top of the terminal block using a screw driver, insert the required wire into the side hole as shown below.

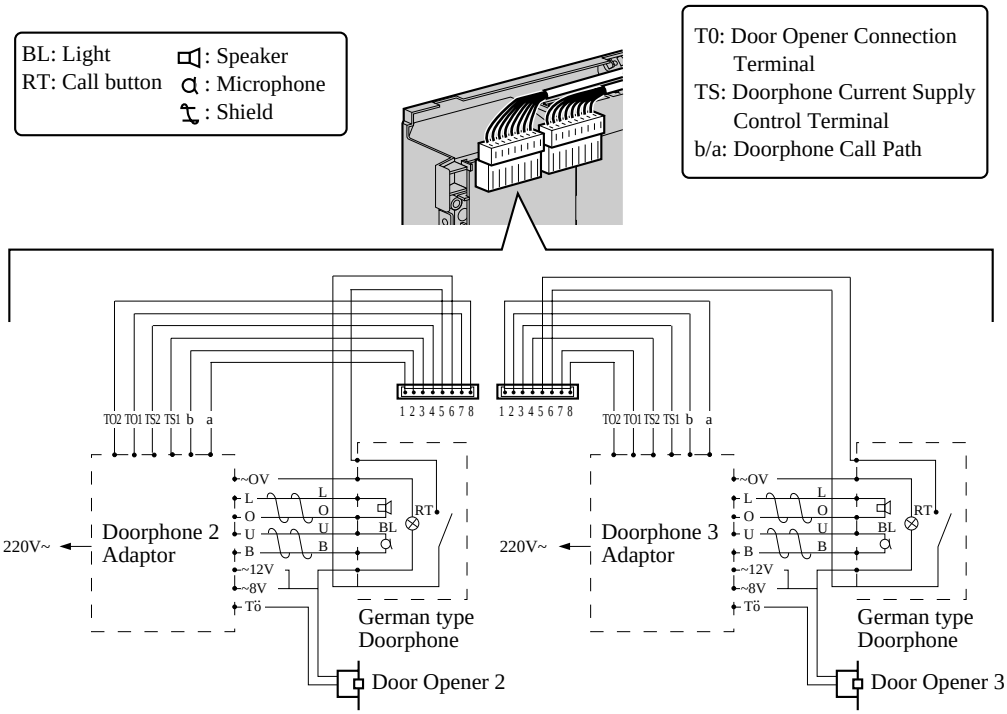


2. Attach the terminal blocks to each doorphone/door opener connector.

a) KX-TD61260 (Two 5-pin Connectors)



b) KX-TD61261 (Two 8-pin Connectors)



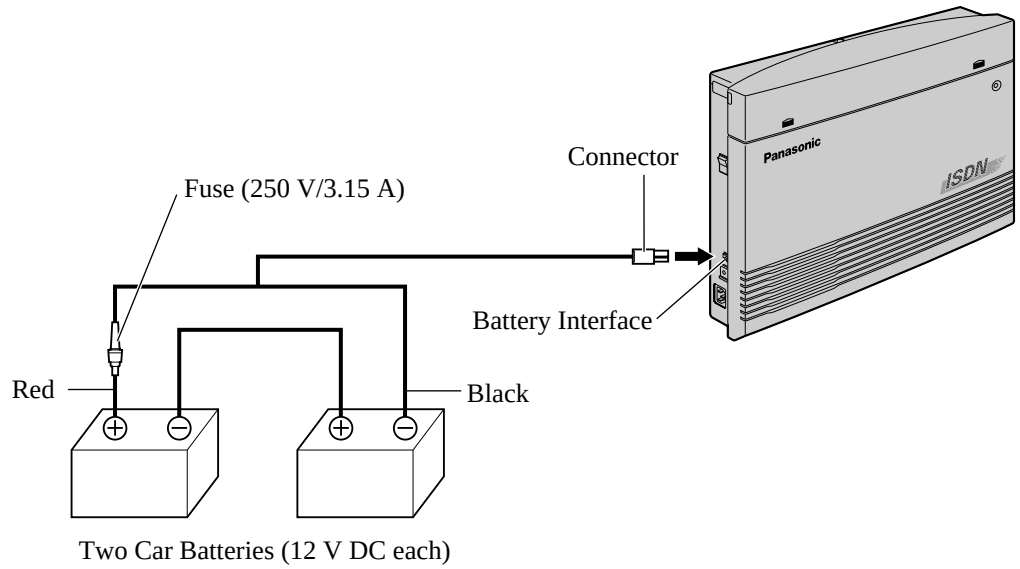
- Refer to section 2.4.5 Doorphone and Door Opener Connection for maximum cable length.

2.6 Backup Batteries Connection

2.6.1 Backup Batteries Connection

Two car batteries can be connected to the system as a backup power supply in the event of a power failure.

1. Attach the cables (KX-A227) and 2 user-supplied car batteries (12 V DC each) as shown below. Then insert the connector into the battery interface on the system.



Two Car Batteries (12 V DC each)

- Check the polarities of batteries and wire.
- Make sure that you do not short the batteries and wires.

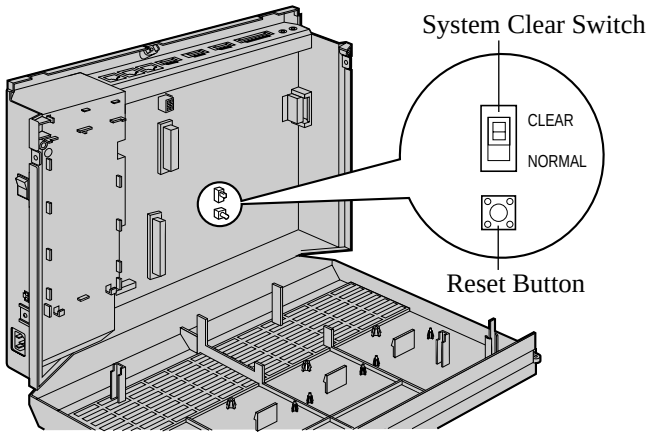
2.7 Starting the System for the First Time

2.7.1 Starting the System for the First Time

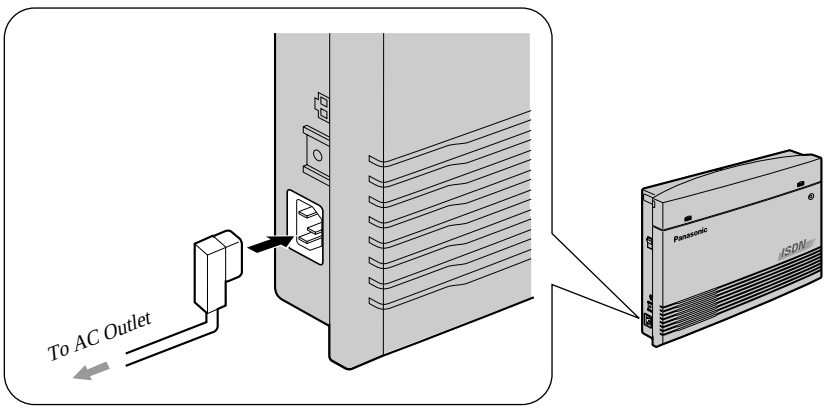
CAUTION

- *Before touching the system clear switch and the reset button, put on a grounding strap. Please refer to 2.2.4 Frame Ground Connection.*
- *Once you start up the system and if you unplug the system, do not perform the following procedures to start the system again. Otherwise, your programmed data is cleared. To start the system, just plug in the system.*
- *The system will continue to be powered even if the power switch is turned "OFF".*
- *The power supply cord is used as the main disconnect device. Make sure that the outlet is located/installed near the equipment and is easily accessible.*

1. Set the system clear switch to the "CLEAR" position.



2. Plug the AC power cord into the system and an AC outlet, and turn on the unit.



3. Press the reset button. (The power indicator will flash.)

4. While the power indicator starts flashing (within about 10 seconds), return the system clear switch to the "NORMAL" position. If successfully executed, the DPTs should show the

time as 0:00.

The system will be initialised with the default values. If the system does not work properly, see section 2.11.1 System Data Default Set.

- After pressing the reset button, return the system clear switch to the "NORMAL" position in step 4 while the power indicator is flashing. Otherwise, the system data will not be cleared.

2.8 Software Installation

2.8.1 PC Programming Software Installation

To program and administer the software of the KX-TD612 by personal computer (PC), you need to install the TD612 PC programming software to your computer from CD-ROM. It is impossible to start the PC programming on CD-ROM. You need to install the PC programming software to your hard disk and start the programme from the drive you installed the software.

System Requirements:

– Microsoft® Windows® 95, Windows 98, Windows Me, Windows 2000, or Windows NT® 4.0 or later

– Installation of Internet Explorer 4.0 or later

– Minimum requirements
(for installing TD612 PC programming software only)

CPU: Pentium® 133 MHz

RAM: 48 MB

HDD: 20 MB

– Recommendation of the ISDN cards for the remote maintenance

FRITZ!Card PCMCIA/AVM

FRITZ!Card PCI/AVM

FRITZ!Card classic/AVM

ELSA MicroLink™ ISDN USB/ELSA

Xircom® CreditCard™ ISDN Adapter/Intel®

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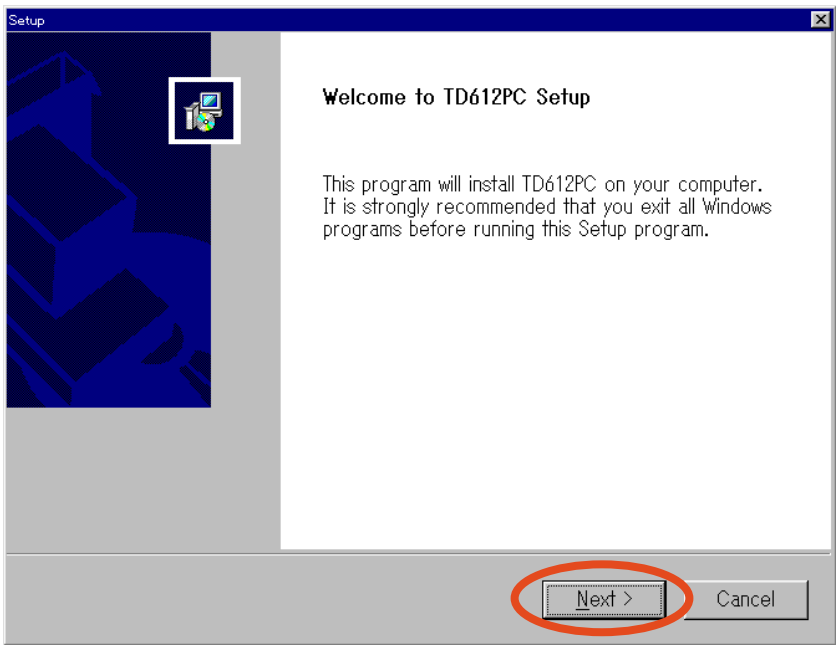
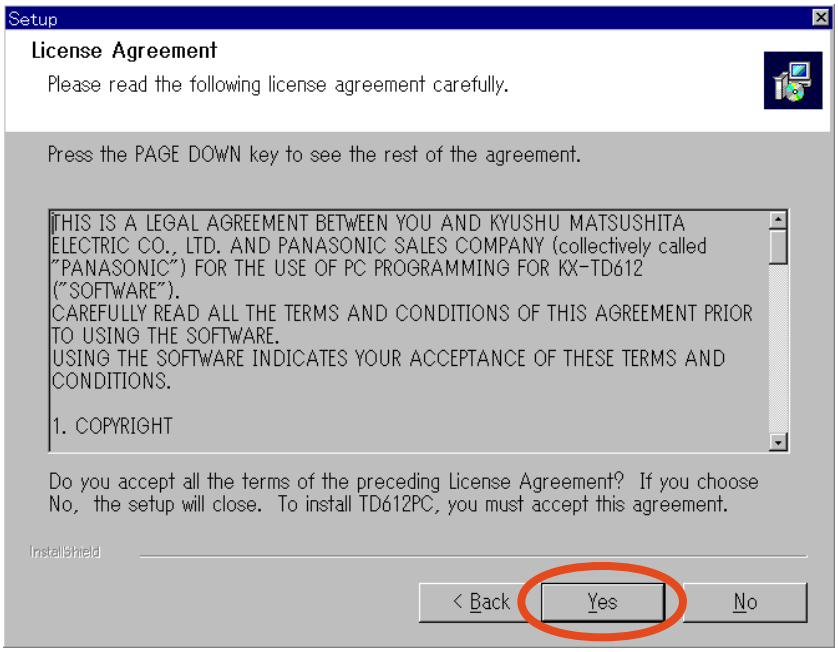
Installation Procedure:

1. Start Windows.
2. After exiting all Windows programmes on your computer, insert the CD-ROM (included) into CD-ROM drive.
3. Click **PC Programming Software Installer** on the initial screen.
4. Click **OK**.
5. Double-click **Setup.exe**.

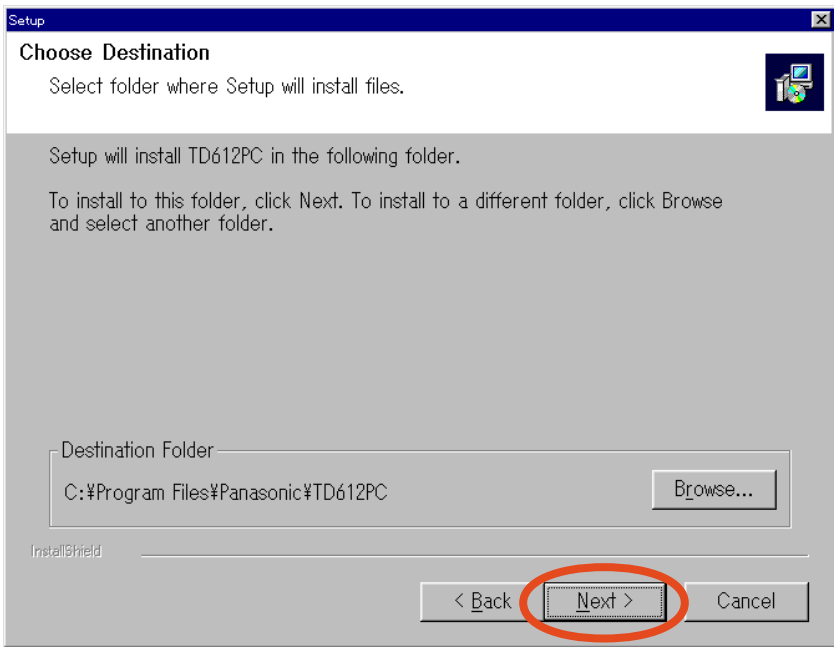
6. Click **Next**.


Setup
Welcome to TD612PC Setup
This program will install TD612PC on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Next >
Cancel

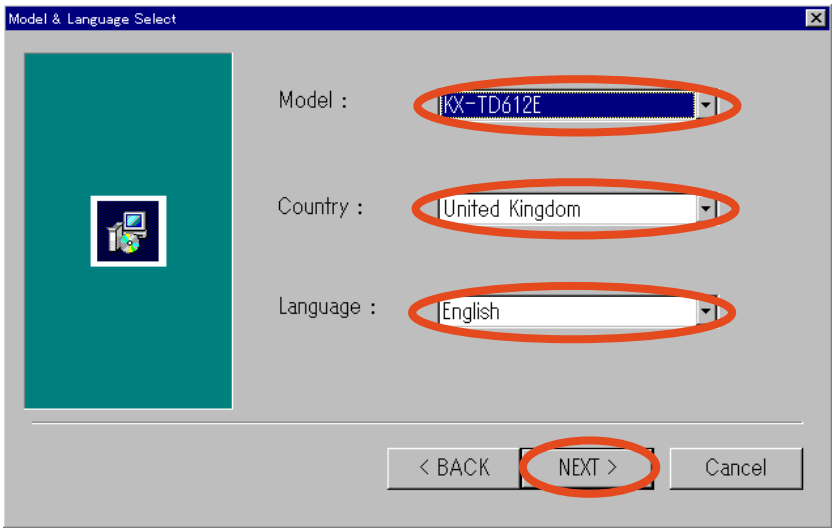
7. Click **Yes**, after reading and accepting the license agreement. If you choose **No**, you cannot install the TD612 PC programming software.


Setup
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
THIS IS A LEGAL AGREEMENT BETWEEN YOU AND KYUSHU MATSUSHITA ELECTRIC CO., LTD. AND PANASONIC SALES COMPANY (collectively called "PANASONIC") FOR THE USE OF PC PROGRAMMING FOR KX-TD612 ("SOFTWARE").
CAREFULLY READ ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT PRIOR TO USING THE SOFTWARE.
USING THE SOFTWARE INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS.
1. COPYRIGHT
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install TD612PC, you must accept this agreement.
InstallShield
< Back
Yes
No

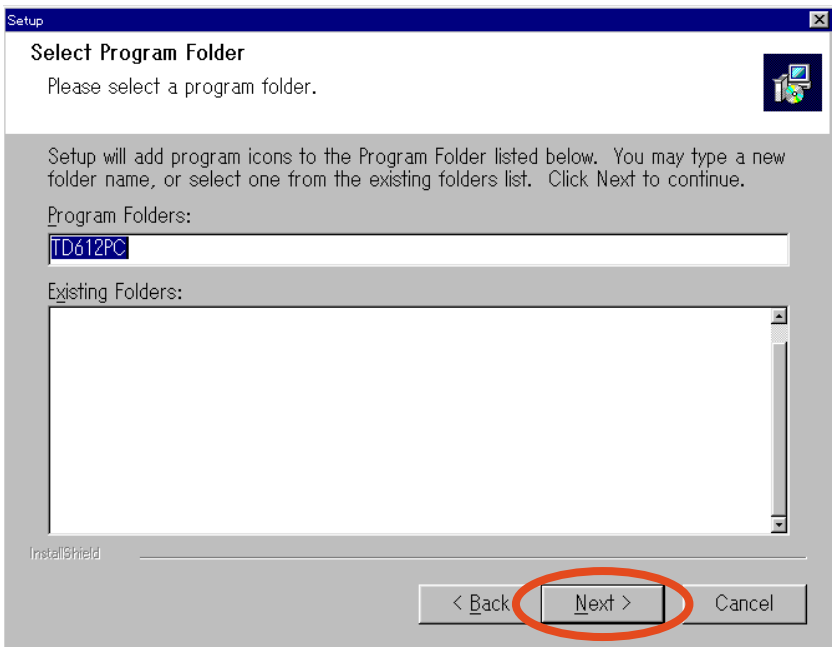
8. Select a folder to save the installed files. (Normally you do not need to change.) Click **Next**.


Setup
Choose Destination
Select folder where Setup will install files.
Setup will install TD612PC in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:¥Program Files¥Panasonic¥TD612PC
Browse...
InstallShield
< Back
Next >
Cancel

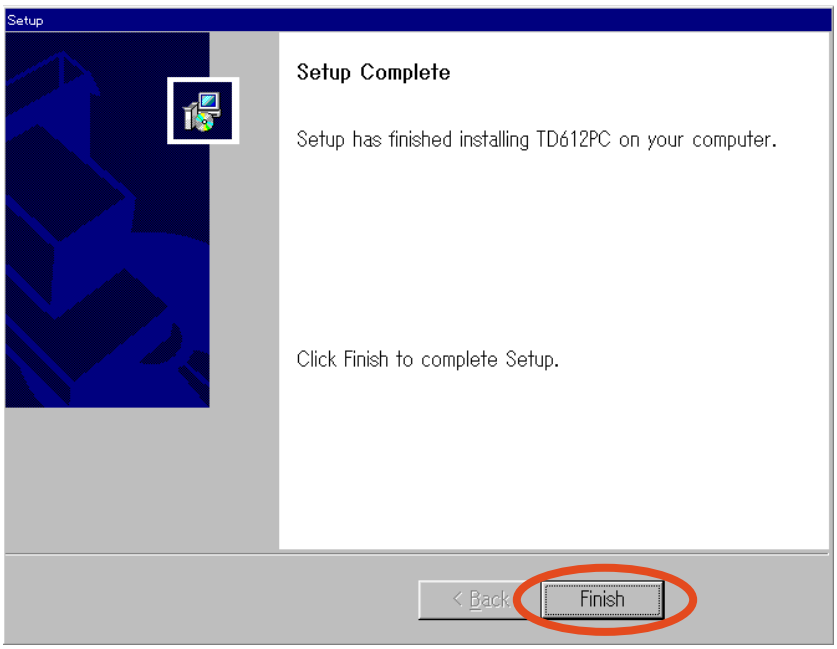
9. Choose the model, the country and the language, and then click **Next**.



10. Select a programme folder where the software will be held. (Normally, you do not need to change.) Click **Next** to start installing.

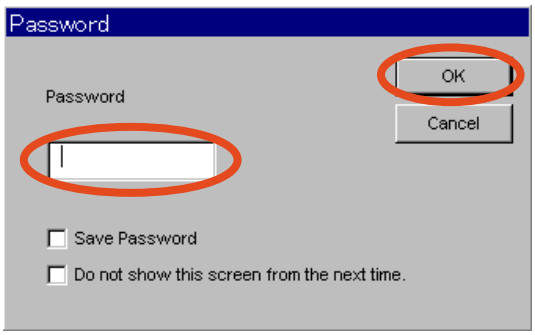

Setup
Select Program Folder
Please select a program folder.
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing folders list. Click Next to continue.
Program Folders:
TD612PC
Existing Folders:
InstallShield
< Back
Next >
Cancel

11. Click **Finish** to complete the installation.

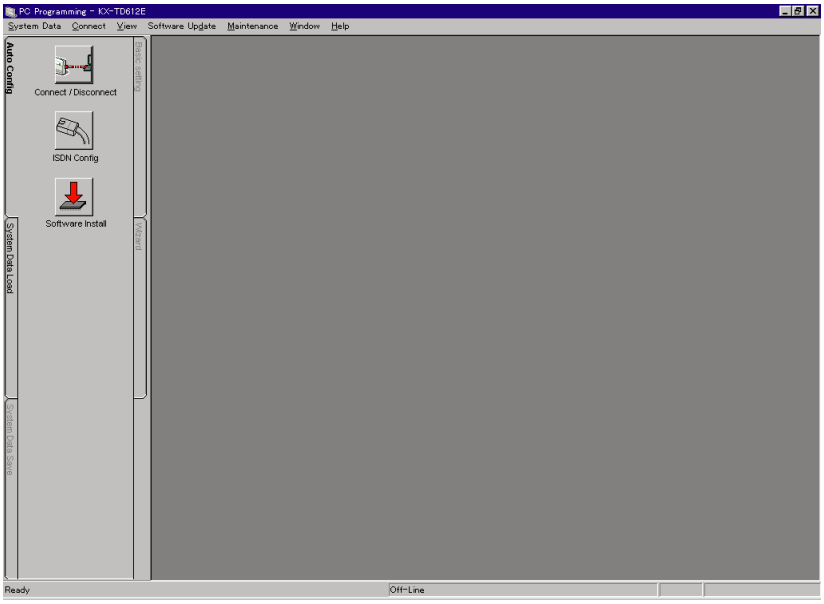


12. Start PC programming software which is in a pre-assigned programme folder.

13. Enter the password for the standard version, which is **TD612**, and click **OK**. (When you start up the feature-limited version, just click **OK** without entering a password.)



14. The initial screen is displayed.



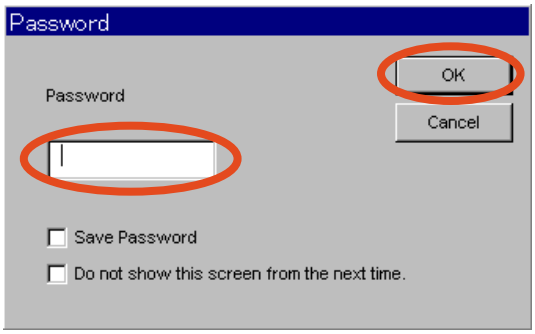
- If you want to remove the installed TD 612 PC programming software, start the procedure from clicking **Uninstall** (**Start → Program → TD612PC**) or double-click **Setup.exe** (which you started when installing) and follow the directions. Please do not attempt a different method of uninstalling the software.
- For further information, refer to "Help" of PC programming software and "PC Programming (page 11-15)" in Getting Started manual.

2.9 ISDN Automatic Configuration

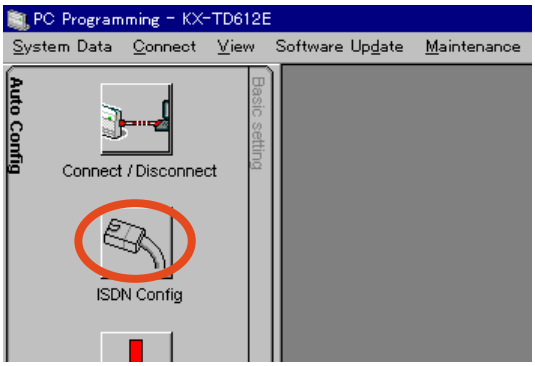
2.9.1 ISDN Automatic Configuration

It is possible to assign ISDN data automatically on PC programming software.

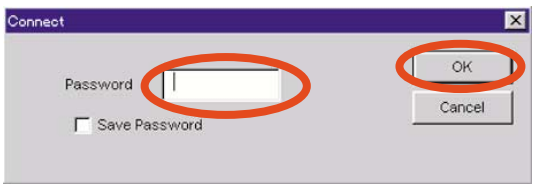
1. Start PC programming software installed in your computer.
2. Enter the password, which is **TD612**, and then click **OK**.



3. Click **ISDN Config** in **Auto Config** tool bar.

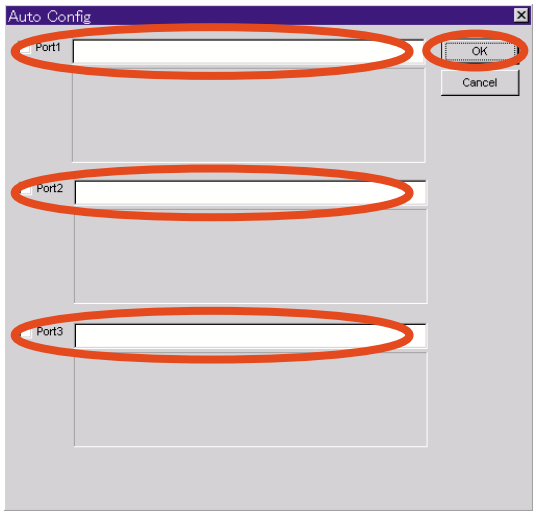


4. Enter the password to connect with the main unit (Default: **1234**), and then click **OK**.



5. Click **OK**.

6. Enter the subscriber number for each port, and then click **OK**.



7. After assigning the following ISDN data automatically, the information will be displayed.

Port Type ([422] ISDN Port Type)
Layer 1 Active Mode ([423] ISDN Layer 1 Active Mode)
Access Mode ([424] ISDN Configuration)
Data Link Mode (L2) ([425] ISDN Data Link Mode)
TEI Assign ([426] ISDN TEI Mode)

- If you entered an unavailable subscriber number and failed in ISDN automatic configuration, the assignments should be done manually.
- For further information, refer to "Help" of PC programming software.

2.10 System Restart

2.10.1 System Restart

After starting the system, if the system does not operate properly, restart the system.
Before restarting the system, try the system feature again to confirm whether there definitely is a problem or not.
System Restart causes the following:

- Camp-on is cleared.
- Calls on Hold are cancelled.
- Calls on Exclusive Hold are cancelled.
- Calls in progress are cancelled.
- Call Park is cleared.

Other data is not cleared by System Restart.

1. Turn the power switch "OFF" and then "ON".

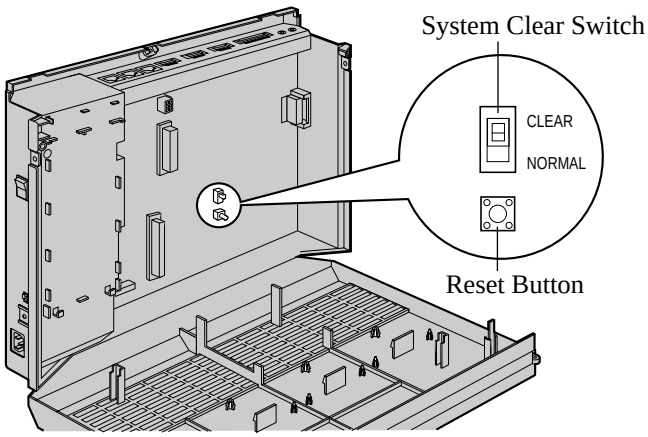
- If the system still does not operate properly, see section 2.11.1 System Data Default Set.

2.11 System Data Default Set

2.11.1 System Data Default Set

When the system does not operate properly after restarting, you can clear the programming data stored in the system. The system will restart with the default setting.
First, try the operation by following step 4 in section 2.7.1 Starting the System for the First Time. If the system still does not operate properly, please follow the procedure below.

1. Slide the system clear switch to the "CLEAR" position.
2. Press the reset button (with a pointed tool, if necessary).
3. While the power indicator starts flashing (within about 10 seconds), return the system clear switch to the "NORMAL" position. If successfully executed, the DPTs should show the time as 0:00.



CAUTION

- *Before touching the system clear switch and reset button, put on a grounding strap.*

- After pressing the reset button, return the system clear switch to the "NORMAL" position in step 3 while the power indicator is flashing. Otherwise, the system data will not be cleared.
- Even if you perform system data clear, OGM and voice message cannot be deleted. To delete OGMs or voice messages, follow the steps described in 2.6.1 Built-in Voice Message or 3.2.3 Recording Company Greeting Outgoing Messages in User Manual. To delete all voice messages and OGMs at once, refer to programme [895] OGM and Voice Message Clear.

- Feature Reference
  - System Data Default Set

Section 3

Troubleshooting

This section provides information for system and telephone troubleshooting.

3.1 Troubleshooting

3.1.1 Installation

PROBLEM	PROBABLE CAUSE	POSSIBLE SOLUTION
Extension does not operate.	Bad printed circuit board.	Exchange printed circuit board for another printed circuit board.
	Bad connection between the system and extension.	Take that extension and plug it into the same extension port using a short telephone cord. If the telephone does not work, connection between the system and the extension must be repaired.
	Bad extension.	Take that extension and plug it into another extension port that is working. If the telephone does not work, replace the phone.
Improper reset operation.		Press the reset button.
Noise in external paging.	Noise on the wire between the system and the amplifier.	Use a shielded cable as the connection wire between the system and amplifier. A short shielded cable is recommended.
Sound distortion from external music source.	Excessive input level from external music source.	Decrease the volume.
Speed Dialling or One-Touch Dialling does not function.	Bad programming.	Enter the CO port access number (9, 81 through 84) when programming.
Your Single line rotary telephone does not function.	The pulse dial from your telephone is disabled by the system.	Select "Enable" in programme [121] Pulse Dial Reception Assignment.
You forget your own extension number.		You can confirm your own extension number if your telephone is provided with a display. Press [PROGRAM] [99] [6]. To exit from the mode, press [HOLD] [PROGRAM].

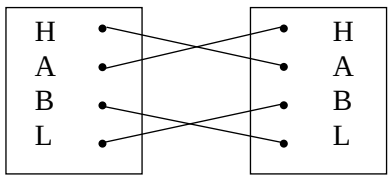
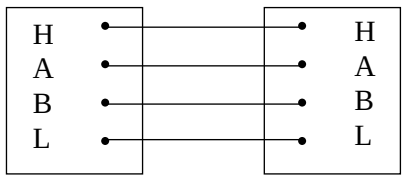
3.1.2 Connection

- Jack 1 through 4
- Jack 5 through 8 (For DPT only)

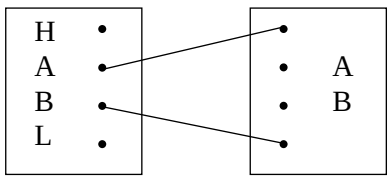
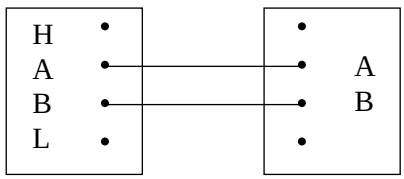
Jack 1 through 4

If you cannot dial an extension.

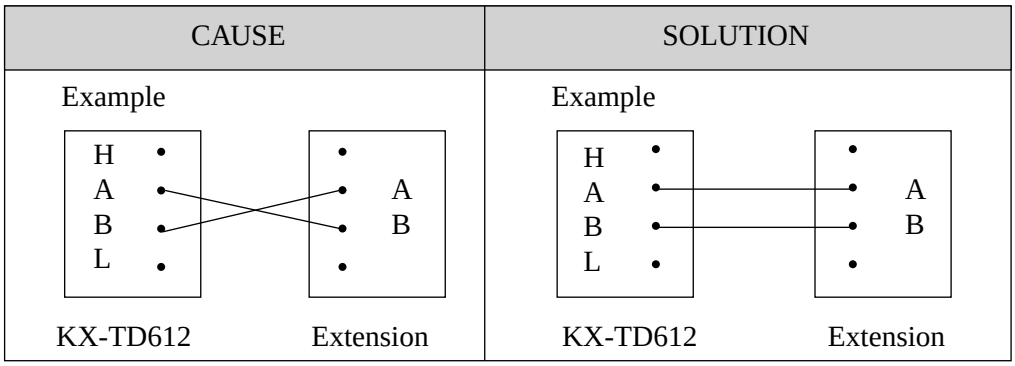
- Connection between the system and a digital proprietary telephone:
  Use the correct cord. (The inner 2 wires are for A/B and outer 2 wires are for H/L.)

CAUSE	SOLUTION
Example  KX-TD612 Extension	Example  KX-TD612 Extension

- Connection between the system and a single line telephone:
  Use the correct cord. (The inner 2 wires are for A/B.)

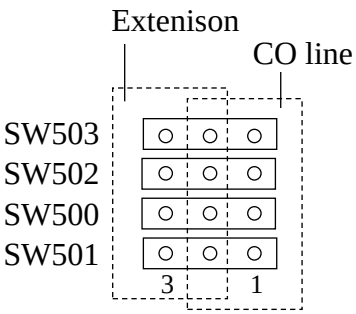
CAUSE	SOLUTION
Example  KX-TD612 Extension	Example  KX-TD612 Extension

- Connection between the system and a single line telephone that is polarity-sensitive:
  Use the correct cord. (A/B for A/B)



If you cannot dial out on a CO line.

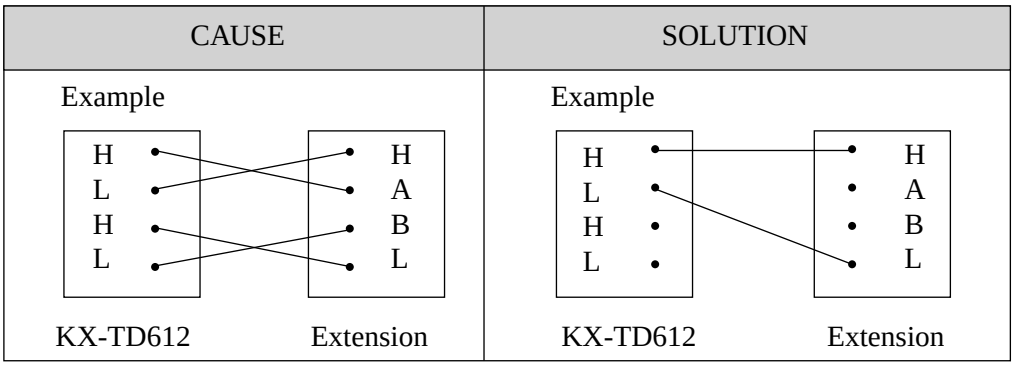
- If a cross type ISDN line cord is used for CO line connection:
  Reconnect the CO lines with a straight type ISDN line card.
- If the adjustment of the extension/CO line switch socket is reversed:
  Adjust the extension/CO line socket as follows.



Jack 5 through 8 (For DPT only)

If you cannot dial an extension.

- Connection between the system and a digital proprietary telephone:
  Use the correct cord. (H/L is for H/L)



- Connection between the system and a single line telephone:
  Connect a digital proprietary telephone.

3.1.3 Operation

PROBLEM	PROBABLE CAUSE	POSSIBLE SOLUTION
When using the speakerphone mode with a digital proprietary telephone, nothing is audible.	The "HEADSET" mode is selected in Station Programming, "Handset/ Headset Selection."	When the headset is not being used, select the "HANDSET" mode by Station Programming.
The unit does not ring.	The Ringer Volume Selector is set to "OFF."	Set to "HIGH" or "LOW."
When originating an outside call, Call Transfer or Conference do not work.	The corresponding CO button does not exist on the digital proprietary telephone.	Program the CO button. See [005] Flexible CO Button/PF Key Assignment.

3.1.4 Using the Reset Button

If the system does not operate properly, use the reset button.
Before using the reset button, try the system feature again to confirm whether there definitely is a problem or not.

Notes:

1. When the system clear switch is set to "NORMAL," pressing the reset button causes the following:
   - **a)** Camp-On is cleared.
   - **b)** Calls on Hold are terminated.
   - **c)** Calls on Exclusive Hold are terminated.
   - **d)** Calls in progress are terminated.
   - **e)** Call Park is cleared.

   Other data stored in memory, except the above, are not cleared.
2. When the system clear switch is set to the "CLEAR" position, you must press the reset button with caution, because all data stored in memory will be cleared by the following operation: pressing the reset button and then setting the system clear switch to the "NORMAL" position while the power indicator is flashing (within approximately 10 seconds).

Operation

1. If the system does not operate properly,
   - **a)** Make sure that the system clear switch is set to the "NORMAL" position.
   - **b)** Press the reset button.
2. If the system still does not operate properly,
   - **a)** Set the system clear switch to the "CLEAR" position.
   - **b)** Press the reset button.
   - **c)** Return the system clear switch to the "NORMAL" position while the power indicator is flashing (within approximately 10 seconds).

Note

As a result of Step2, all the programmed data will be cleared.

3. If the system still does not work, unplug the system and plug it in again after 5 minutes.
4. If the system still does not work,
   - **a)** Unplug the system.
   - **b)** Set the system clear switch to the "CLEAR" position.
   - **c)** Plug in the system.
   - **d)** Press the reset button.

e) Set the system clear switch to the "NORMAL" position while the power indicator is flashing (within approximately 10 seconds).

CE

This Equipment complies with the essential requirements of the Directive 1999/5/EC Radio and telecommunications terminal equipment directive.

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